AD-781 825

STATIC RADAR CROSS SECTION OF LIGHT AIRCRAFT. VOLUME I. CESSNA 150L AT L-, S-, AND C-BANDS

Test Group (6585th)

Prepared for:

Air Force Special Weapons Center
Federal Aviation Administration

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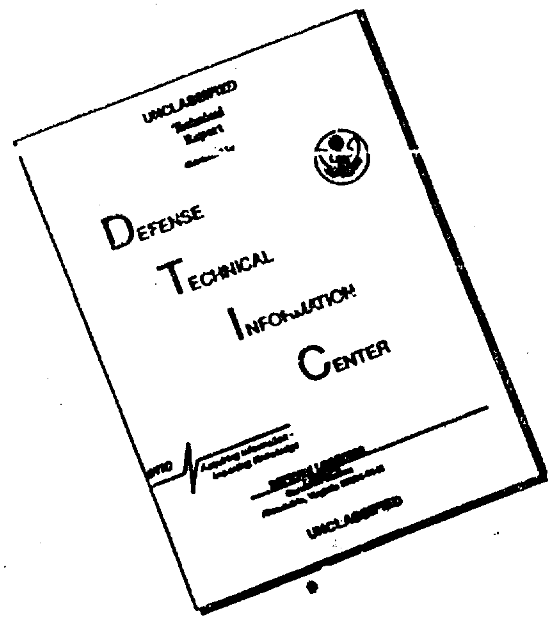

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16. Abstract

Static radar cross section (RCS) of a single-engine Cessna 150L utility aircraft was measured at 2700, 2800, and 2900 MHz over a range of aircraft attitudes of ±10° pitch, 0° to 45° roll, and also at 1250, 1350, 5000, and 5400 MHz at 0° roll, 0° pitch. Median RCS was independent of frequency in linear polarization but not in circular polarization. At S-Band the median RCS was nearly independent of roll and pitch except in the two broadside directions. In those two directions at roll angles between 20° and 45° median RCS was 6 dB to 10 dB greater when viewing the aircraft upper surface than when the radar aspect was into the lower surfaces of wing and fuselage at the same roll angle.

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SECTION I

1. Introduction

This document is Volume I of a three-volume set (References 1 and 2) on measurement of static radar cross section (RCS) of light aircraft. The measurement program comprised three types of single-engined aircraft:

a. All-metal high wing
b. All-metal low wing
c. Fabric-covered (high wing)

Type (a), represented by a Cessna 150, is the subject of this report. Measurements on a Cherokee 140, typical of type (b), are presented in Volume II, and the data on type (c), a Super Cub, are given in Volume III.

The objective of the program was to measure static RCS of typical light aircraft over a range of frequencies, polarizations, and aspect angles. These data would aid in defining the need for and amount of RCS enhancement on light aircraft to improve their visibility on FAA airport surveillance radars.

The data measurements were made at the Radar Target Scatter Division (RAT SCAT) of the 6585th Test Group located on the Alkali Flats, Holloman Air Force Base, New Mexico.

2. Description of Target

The RCS data presented in this report were measured on a Model 150L utility aircraft, serial number 15074034, manufactured in 1972 by the Cessna Aircraft Company, Wichita, Kansas. An Airworthiness Certificate was issued 10 November 1972, a Certificate of Aircraft Registration was issued 19 January 1973.

The aircraft (Figure 1) was equipped with a VOR navigation antenna on the vertical stabilizer, a VHF communication antenna on the cabin roof, and an emergency locator transmitter antenna on the top of the fuselage just forward of the dorsal fin.

The aircraft was flown to the test site. The only things done to prepare it for RCS measurement were (1) drain the fuel and engine oil, (2) lock the control system in neutral, and (3) set the propeller to horizontal (approximately). The radio equipment was turned off during all testing.

3. Instrumentation

Data measurement was achieved with a long-pulse radar system operating on a ground plane range. Figure 2 illustrates the components of the measurement range. The radar transmitter, receiver, control console, and data recorders were housed in a mobile van. The antennas were supported on a mobile tower. Rotation of the target in azimuth was controlled from the van and azimuth synchro signals were returned to the van through an underground electrical conduit.

The radar transmitter uses an oscillator to drive a low-level, pulsed TWT that in turn drives a high-level pulsed TWT to provide 1 KW peak output power. The receiver is a range-gated superheterodyne system. The range gate controls the ON time of the 60 MHz IF amplifier. The time interval that the IF amplifier is ON can be set by the radar operator to correspond to any desired position along the measurement range. A 60 MHz reference signal from the control console is injected into the receiver through a variable attenuator. The amplitude difference between the target signal and the reference signal is applied to a servo that drives the variable attenuator to make both signals equal. A potentiometer and a digital encoder geared to the servo system follow the varying position of the attenuator and provide signals for an analog recorder (polar or rectilinear) and a digital recorder (punch paper tape or magnetic tape).

Sections 1 and 2 of Appendix A and Table A-1 of Appendix A summarize the characteristics of RAT SCAT facilities and equipment. The information applies to mobile-mounted equipment as well as to the fixed installations. A mobile test van was used in this program in order to operate over a range length not available on the fixed ranges.

The RCS measurements presented in this report were obtained on a ground plane range wherein the target is measured near to the ground. The ground is present as a scattering object and in such a circumstance coupling between orthogonal components of the transmitted and received fields may exist other than the coupling introduced by the target. This coupling (or depolarizing) can be a problem only for measurement in circular polarization. References 3 and 4 describe the theoretical and experimental studies made on the subject specifically for the RAT SCAT range. It was shown that circular polarization measurements can be made on a ground plane range. The size of the useful target region is approximately the same when circular polarization is used as that obtained when linear polarization is used with the amplitude curvature in the vertical plane being the limiting factor in both cases. Standardized calibration procedures used at RAT SCAT assure the accuracy of RCS measurements using circular polarization.

The primary calibration standard for linear polarization was a 26.6 inch diameter precision aluminum sphere and was used at all measurement frequencies. The primary calibration standard for circular polarization was a ninety-degree dihedral corner with square faces 0.85 meters in each dimension. This corner was calibrated against the precision sphere, making use of a 45° dipole to transfer from linear to circular polarization. The secondary reference standard (approximately mid-range on Figure 2) was a trihedral corner. This secondary standard was used for both linear and circular polarization.

The radar antennas were parabolic dishes with dipole feeds for linear polarization and planar spiral feeds for circular polarization. Circularity was below 0.7 dB at all frequencies.

4. Procedure

Data on this program were obtained at seven frequencies and three polarizations over a range of roll and pitch angles as summarized in Table I.

Table I - RCS Measurement Matrix

Freq. (MHz)	Polarization	Roll Angle (Degrees)	Pitch Angle (Degrees)
1250	VV,HH,RR	0	0
1350	VV,HH,RR	0	0
2700	VV,--,RR	0,5,10,20,30,45	-10,-5,0,+5,+10
2800	VV,HH,RR	0,5,10,20,30,45	-10,-5,0,+5,+10
2900	VV,--,RR	0,5,10,20,30,45	-10,-5,0,+5,+10
5000	VV,HH,--	0	0
5400	VV,HH,--	0	0

The first letter designating polarization defines the polarization of the transmit antenna, the second letter defines polarization of the receive antenna. The nomenclature follows common practice in which only the spatial orientation of the electric field vector is specified: V for vertical, H for horizontal, R for right-hand circular.

The aircraft was placed on the support columns at the azimuth turntable by a mobile crane. Figure 4 shows the equipment needed to place the target in position for test. The aircraft was supported by nylon web straps from a load beam attached to the crane. The nylon straps were positioned around the nose and tail of the aircraft in such a way that the aircraft would be in approximately the desired roll attitude when lifted. The aircraft was swung over the turntable and lowered onto the transition sections on top of each column. The two columns were expanded polystyrene fabricated in vertical wedge sections to form a cone with circular cross section. The transitions, of similar material, were pre-shaped to fit the aircraft fuselage and support the target on the columns at the desired roll and pitch attitude.

The aircraft was braced on the columns by a network of parachute cord tied to the fuselage, tail, and wing struts, and anchored to winches on the azimuth turntable. The target was set to the desired roll and pitch by adjusting tension on the tie-down cords. Roll and pitch angle were measured at the propeller hub. The propeller was rotated to an index line, the spinner was removed and a protractor placed on the propeller hub. Roll angle was measured by sighting a transit on the protractor. Pitch angle was measured on the front of the propeller hub with an inclinometer. Pitch angle thus was measured with respect to the axis of the engine crankshaft. Both roll and pitch were set to an accuracy of ± 0.5 degrees.

In Figure 4 the aircraft has been set to 20 degrees roll, 10 degrees positive pitch and the load beam is being detached. In Figure 5 the ground equipment has been removed and the target is ready for measurement. The polystyrene collar on the aft fuselage is the bearing structure for the aft lifting strap from the load beam. Target RCS measured at S-Band with and without the collar in place gave identical results so the collar was left in place at all times to facilitate attaching the aircraft to the crane in case surface wind velocity suddenly increased or became gusty.

Target height was 14 feet at L- and C-Bands, 16 feet at S-Band. Target height is the vertical distance between ground level and a horizontal line (the pitch axis) through the half height of the fuselage mid way between aircraft nose and tail, measured with the aircraft in level flight attitude. Figure 3 illustrates the relation between target height and the axes of pitch and yaw.

A target being measured on a ground plane range is in an electromagnetic field that is the vector sum of (1) the wave energy that travels directly from antenna to target, (2) the wave energy reflected from the surface of the earth, and (3) the wave energy that travels along the surface of the earth. The vector sum produces an interference pattern.

Antenna height is adjusted so that the target is located in the first lobe of the interference pattern described by the equation

$$H_a = \frac{\lambda R}{4 H_t}$$

where H_a is antenna height, H_t is target height, λ is wavelength, and R is range length. In order to obtain accurate RCS measurements the following steps are required:

(a) Adjust antenna height and pointing direction for best field uniformity across the volume occupied by the target.

(b) Tilt the azimuth turntable so the target rotates in the plane of the antenna beam.

(c) Minimize reflections from target supports, tie-downs and turntable.

(d) Calibrate the range at all frequencies and polarizations.

The range parameters used on the program after the above steps were carried out at each frequency are summarized in Table II.

Measurement of RCS began with the three frequencies in S-Band: 2700 MHz, 2800 MHz and 2900 MHz. Because of the large effort required to mount the target for measurement it was prudent to record as many RCS patterns as possible for each mounting of the target. For that reason four antennas were used: one pair for linear polarization, the other pair for circular polarization. The antenna pairs were switched to the radar transmitter and receiver as required. That arrangement allowed measurement of seven RCS patterns for each roll/pitch attitude of the target. If weather conditions remained favorable upon completion of such a pattern group the target was set to the next roll/pitch attitude and RCS measurement went on, continuing until dark. A post-test calibration was then made. If weather became unfavorable (wind velocity above 10 knots, or rain) the target was removed from the turntable and the post-test calibration was made as quickly as possible. In any event the aircraft was not measured in wind velocity above 10 knots or after dark, and the range was calibrated before and after a sequence of measurements. The post-test calibration for one day was not used as the pre-test calibration for the next sequence of measurements. Each day began with a new calibration.

At L-Band (1250 MHz and 1350 MHz) one pair of antennas was used instead of two pair because only one target roll/pitch attitude was

measured (see Table I). The two linear patterns were measured at each frequency followed by the post-test calibration. The linear feeds were replaced by the circular feeds, and a new calibration was made at the two frequencies. The two circular polarization patterns were then measured, ending with a post-test calibration.

At C-Band (5000 MHz and 5400 MHz) only linear patterns were required, all of which were recorded without re-calibration for circular polarization.

5. Results

The RCS patterns presented in this report are copies of the original recorded data. Each pattern includes a calibration reference level from which the decibel scale was labelled. Each pattern also is marked with azimuth angle (horizontal scale at the bottom), and is identified as to pitch and roll angle, all of which are defined in Appendix B.

The patterns represent considerable amount of data, containing as they do the dependence of RCS on all combinations of frequency, polarization, roll angle, and pitch angle. Representative relationships, making use of median RCS to simplify the data, are shown in Figures 6 through 9. Median RCS was computed for a 10 degree azimuth increment with a 5 degree overlap.

The median RCS for linear polarization with the aircraft at 0° roll and 0° pitch was independent of frequency. Other roll and pitch attitudes were not measured at all frequencies so that data are not available to support a more general conclusion. The affect of circular polarization could not be examined over the entire frequency range because circular polarization was not used at C-Band. However, the median RCS at 2800 MHz was about 7 dB greater than at 1250 MHz indicating that RCS in circular polarization is frequency dependent.

Figure 7 illustrates the affect of roll angle (at zero degrees pitch) with vertical polarization at 2800 MHz. The graph shows contours of median RCS in decibels. Horizontal lines are patterns of RCS vs azimuth at fixed roll angles. Vertical lines indicate the affect of roll angle at a given azimuth direction. Variation of RCS with roll angle is greatest in the 90° direction (or the 270° direction for negative roll angles) where the radar line of sight is onto the upper surface of the wing. At other azimuth angles the RCS variation with roll is trivial.

A similar result was found with RR polarization at 2800 MHz, as illustrated in Figure [illegible]. The affect of roll angle on RCS was greatest in the 90 degree direction (or 270 degree direction for negative roll).

Horizontal polarization was very similar to vertical polarization and has not been shown in this set of figures.

Figures 8 and 9 show how pitch angle influenced RCS at 2800 MHz with the aircraft at zero degrees roll. Variation of RCS at vertical (and horizontal) polarization, Figure 8, was small over the measured range of pitch angles. With RR circular polarization, Figure 9, the variation was not large in terms of decibel range but the variation did cover a greater span of azimuth angles, not being restricted to the 90° or 270° azimuth directions.

6. References

1. AFSWC-TR-73-46, Volume II, Static RCS of Light Aircraft. Cherokee 140 at L-, S-, C-Bands, Dec 1973.

2. AFSWC-TR-73-46, Volume III, Static RCS of Light Aircraft, Super Cub at L-, S-, C-Bands, Dec 1973.

3. RADC-TDR-63-484, An Analysis of the Polarization Capabilities of a Ground Plane Cross Section Range, October 1963.

4. RADC-TDR-64-380, Experimental Results of Circular Polarization and Scattering Matrix Measurements, June 1964.

Table II Test Range Parameters for Cessna 150L RCS Measurements

Freq. (MHz)	Target Ht. (ft)	Antenna Ht.	Antenna Diameter (ft)	Range (ft)	Table Tilt (Min)
1250	14	12'-6"	10	1150	42
1350	14	12'-6"	10	1150	42
2700	16	12'-6"	6	2100	26
2800	16	12'-6"	6	2100	26
2900	16	12'-6"	6	2100	26
5000	14	6'-5"	4	2100	23
5400	14	5'-10"	4	2100	23

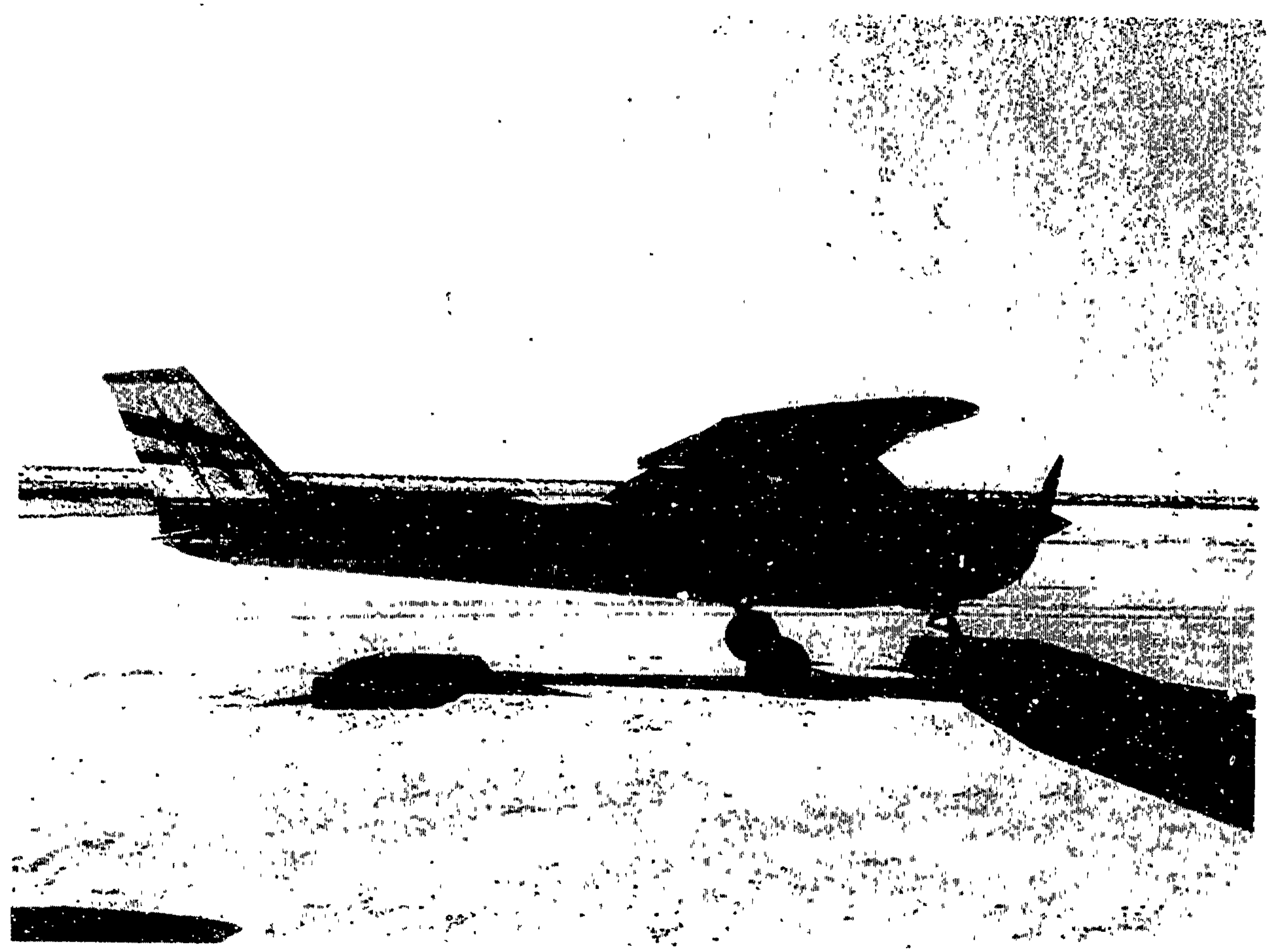

Figure 1. Cessna 150L Utility Aircraft

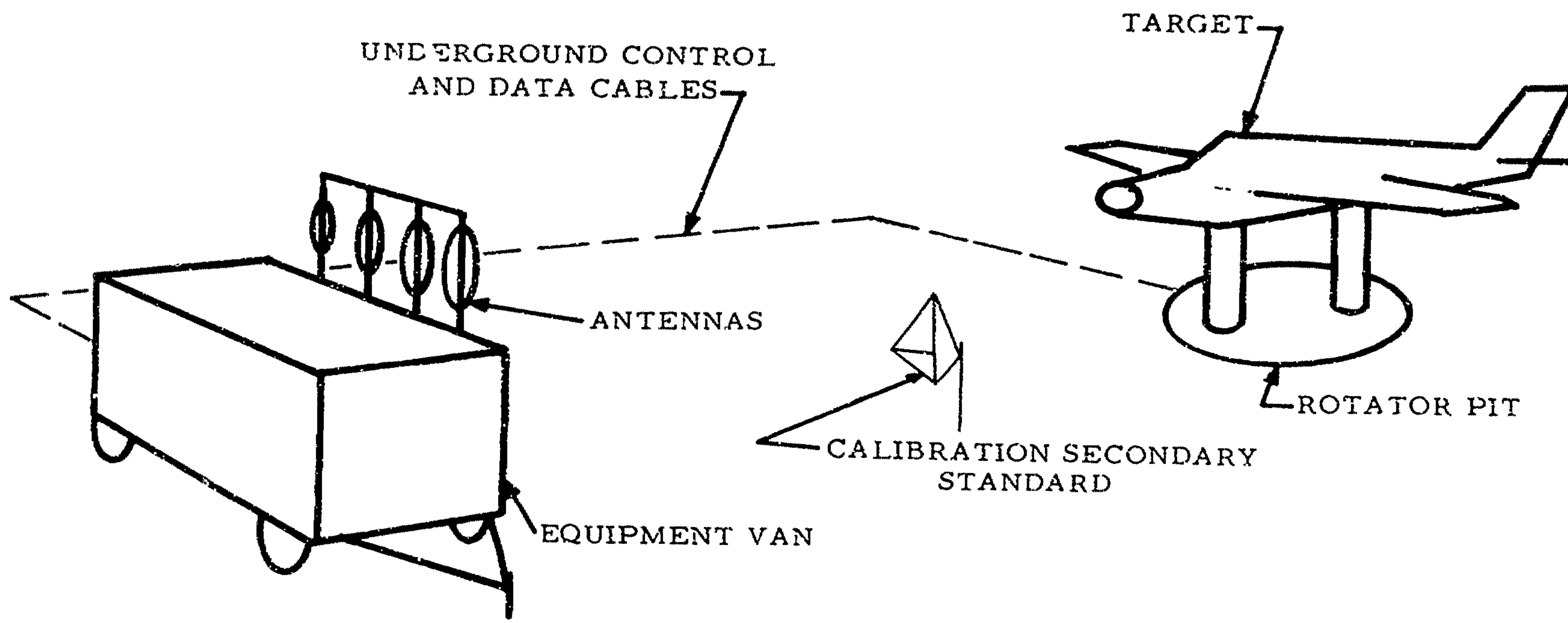

Figure 2. Elements of the radar measurement range.

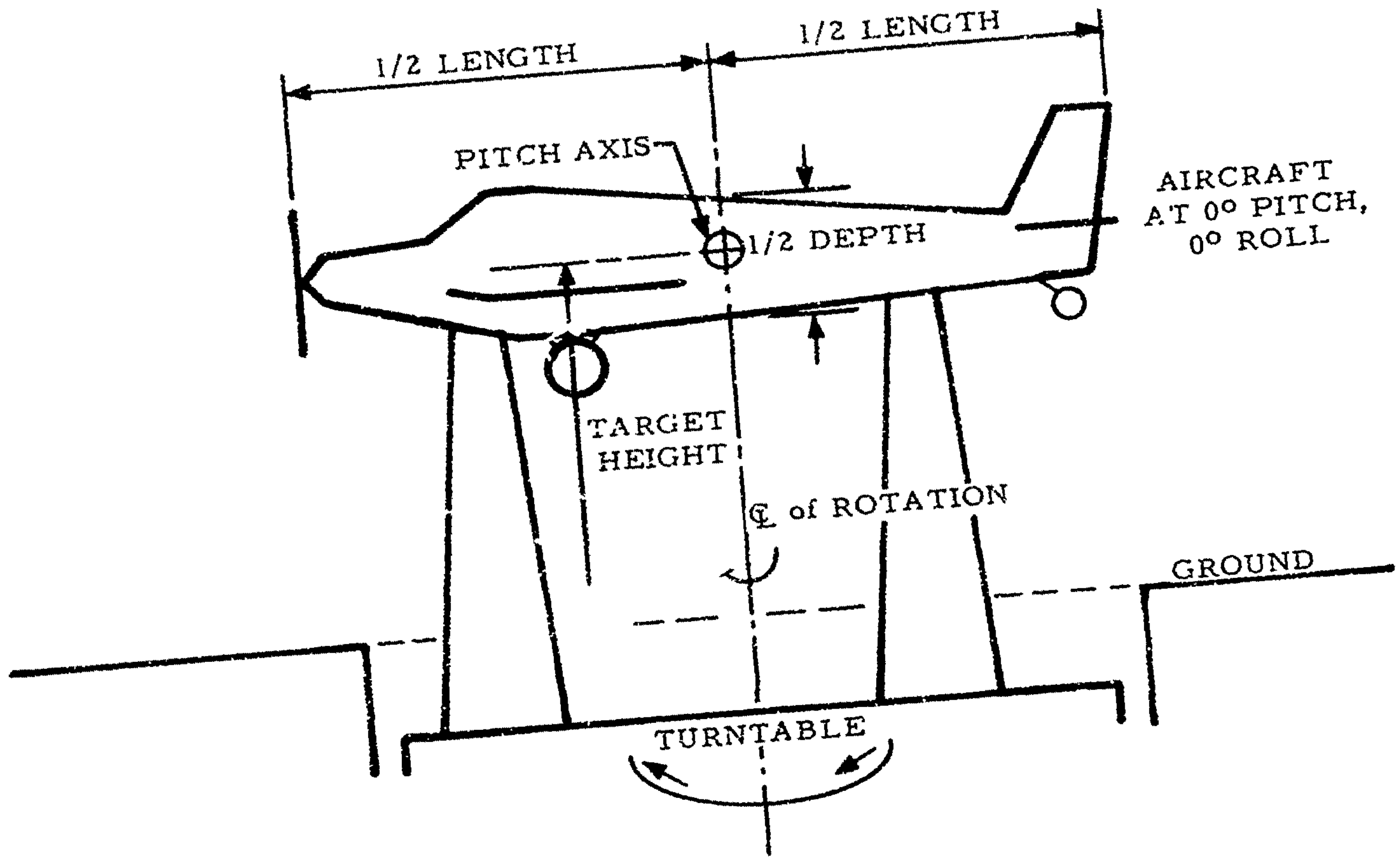

Figure 3. Aircraft mounting geometry showing location of pitch axis, yaw axis and designation of target height.

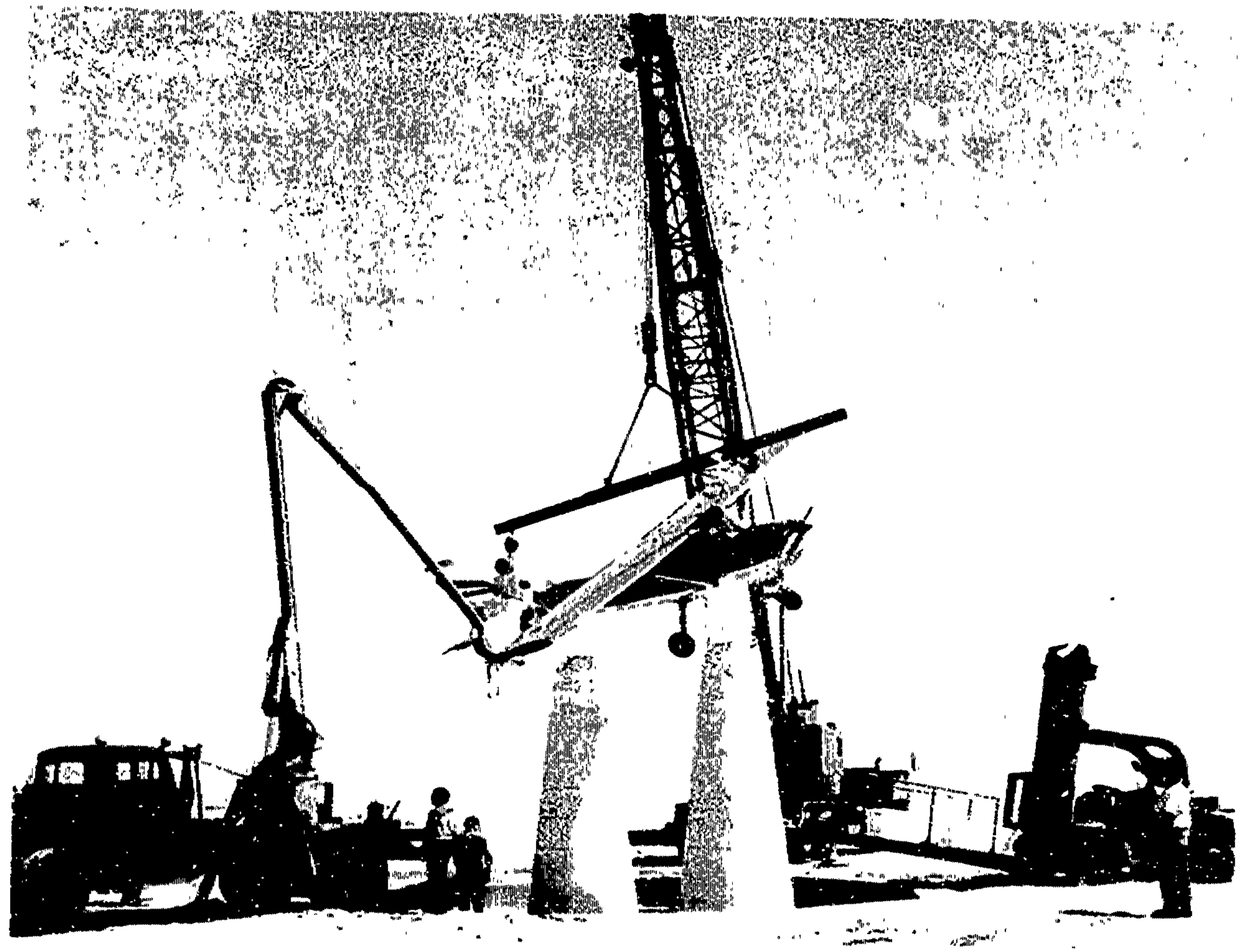

Figure 4. Aligning Cessna 150L for Test

Figure 5. Cessna 150L Mounted for RCS Measurement at 20° Roll, +10° Pitch

CONTOURS OF EQUAL dbsm

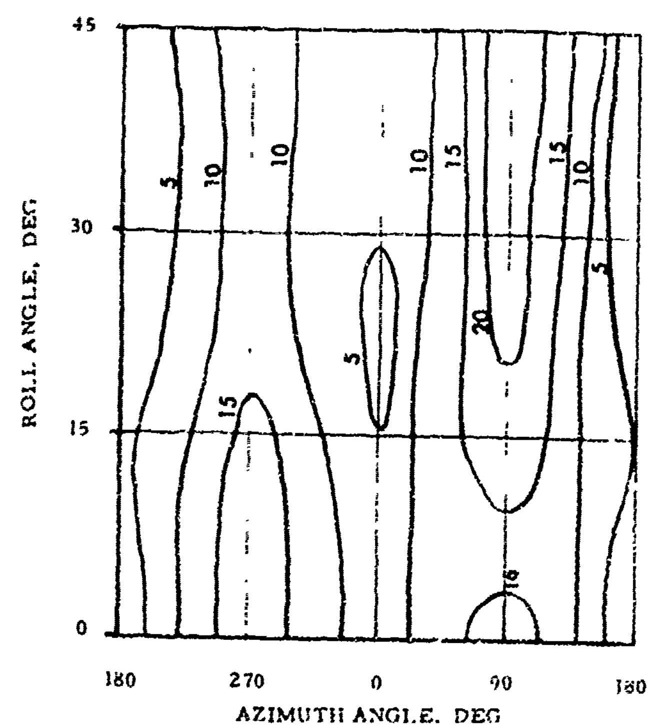

Figure 6. RCS vs Roll Angle at 0° pitch angle for 2800 MHz, VV polarization

CONTOURS OF EQUAL dbsm

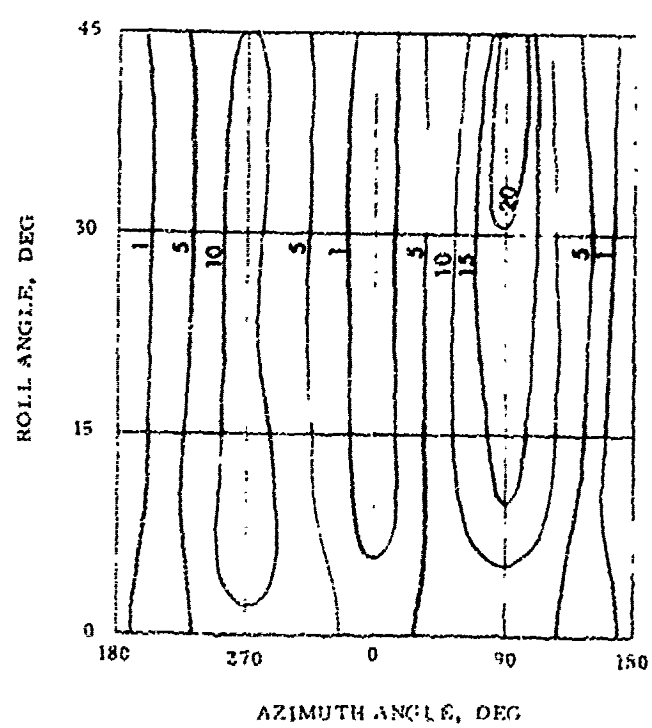

Figure 7. RCS vs Roll Angle at 0° pitch angle for 2800 MHz, RR polarization

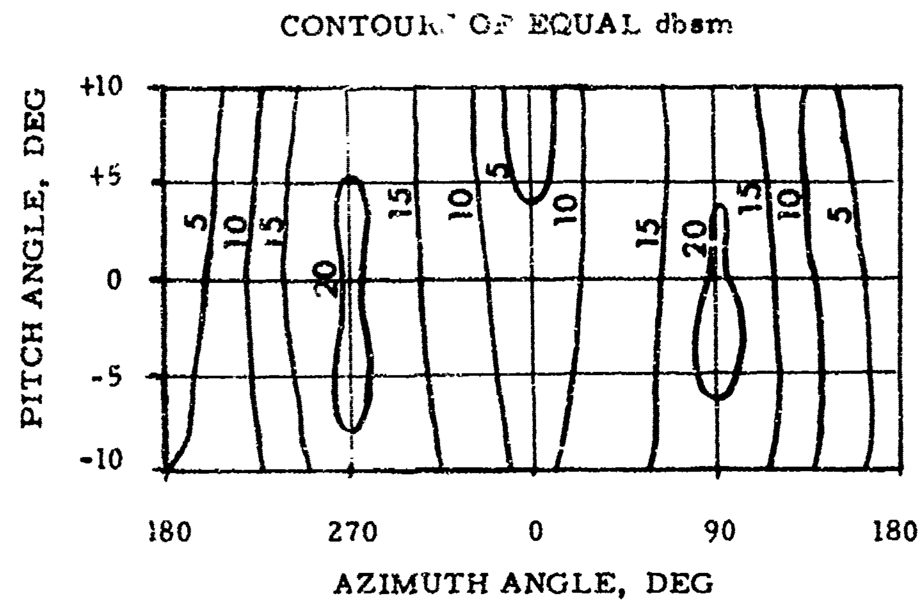

Figure 8. RCS vs Pitch Angle at 0° roll angle for 2800 MHz, VV polarization.

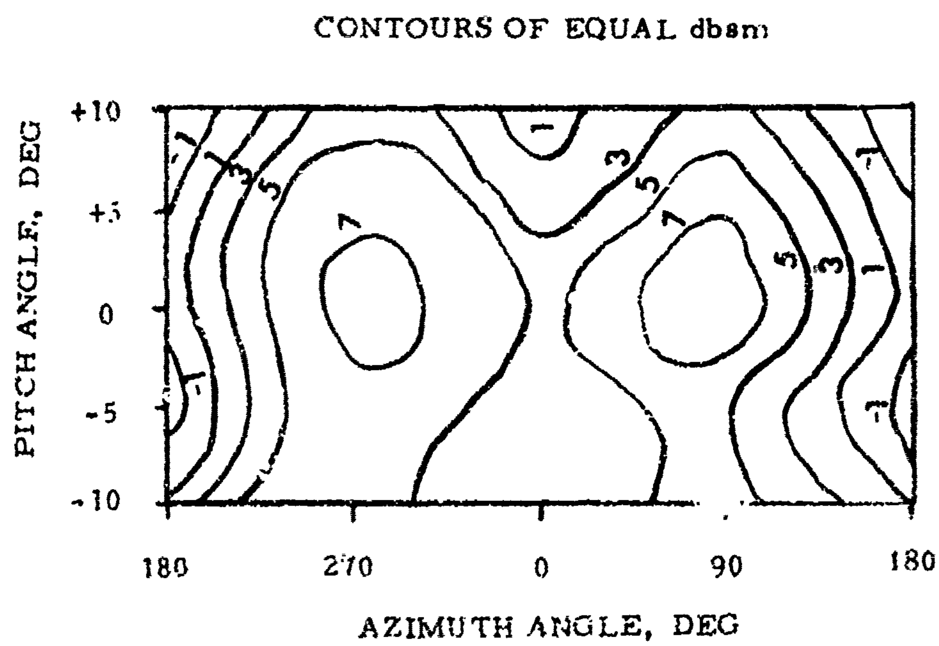

Figure 9. RCS vs Pitch Angle at 0° roll angle for 2800 MHz, RR polarization.

CONTROL NUMBER 73-01 Table III DATA PLOT INDEX Sheet 1

PAGE NO.	RUN	FREQ (MHz)	POLARIZATION	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
24	49	2700	VV	[illegible]	0	Cessna 150 Airplane
25	25	2700	VV	-5	0	Cessna 150 Airplane
26	23	2700	VV	0	0	Cessna 150 Airplane
27	[illegible]	2700	VV	+5	0	Cessna 150 Airplane
28	80	2700	VV	+10	0	Cessna 150 Airplane
29	115	2700	VV	-10	5	Cessna 150 Airplane
30	114	2700	VV	-5	[illegible]	Cessna 150 Airplane
31	128	2700	VV	0	[illegible]	Cessna 150 Airplane
32	94	2700	VV	+5	5	Cessna 150 Airplane
33	93	2700	VV	+10	5	Cessna 150 Airplane
34	157	2700	VV	-10	10	Cessna 150 Airplane
35	149	2700	VV	-5	10	Cessna 150 Airplane
36	136	2700	VV	0	10	Cessna 150 Airplane
37	184	2700	VV	+5	10	Cessna 150 Airplane
38	185	2700	VV	+10	10	Cessna 150 Airplane
39	318	2700	VV	-10	20	Cessna 150 Airplane
40	297	2700	VV	-5	20	Cessna 150 Airplane
41	227	2700	VV	0	20	Cessna 150 Airplane
42	276	2700	VV	+5	20	Cessna 150 Airplane
43	288	2700	VV	+10	20	Cessna 150 Airplane
44	397	2700	VV	-10	30	Cessna 150 Airplane
45	384	2700	VV	-5	30	Cessna 150 Airplane
46	325	2700	VV	0	30	Cessna 150 Airplane
47	345	2700	VV	+5	30	Cessna 150 Airplane
48	382	2700	VV	+10	30	Cessna 150 Airplane
49	493	2700	VV	-10	45	Cessna 150 Airplane
50	470	2700	VV	-5	45	Cessna 150 Airplane
51	418	2700	VV	0	45	Cessna 150 Airplane
52	433	2700	VV	+5	45	Cessna 150 Airplane
53	467	2700	VV	+10	45	Cessna 150 Airplane
54	63	2700	VV	N/A	N/A	Background with 0^{o} roll, -10^{o} pitch transitions
55	632	2700	VV	N/A	N/A	Background with 45^{o} roll, -10^{o} pitch transitions

RBD 72-007

[illegible] Table [illegible] **DATA PLOT INDEX** Sheet 2

[illegible]	[illegible]	[illegible]	[illegible]	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	Cessna 150 Airplane
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	Cessna 150 Airplane
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Background with 2^0 roll, -10^0 pitch transitions
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Background with 5^0 roll, -10^0 pitch transitions

CONTROL NUMBER 73-01 Table III **DATA PLOT INDEX** Sheet 3

PAGE NO.	RUN	FREQ (MHz)	POLARI-ZATION	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
88	46	2800	VV	-10	0	Cessna 150 Airplane
89	27	2800	VV	-5	0	Cessna 150 Airplane
90	20	2800	VV	0	0	Cessna 150 Airplane
91	74	2800	VV	+5	0	Cessna 150 Airplane
92	83	2800	VV	+10	0	Cessna 150 Airplane
93	118	2800	VV	-10	5	Cessna 150 Airplane
94	111	2800	VV	-5	5	Cessna 150 Airplane
95	124	2800	VV	0	5	Cessna 150 Airplane
96	97	2800	VV	+5	5	Cessna 150 Airplane
97	90	2800	VV	+10	5	Cessna 150 Airplane
98	159	2800	VV	-10	10	Cessna 150 Airplane
99	146	2800	VV	-5	10	Cessna 150 Airplane
100	139	2800	VV	0	10	Cessna 150 Airplane
101	181	2800	VV	+5	10	Cessna 150 Airplane
102	210	2800	VV	+10	10	Cessna 150 Airplane
103	307	2800	VV	-10	20	Cessna 150 Airplane
104	300	2800	VV	-5	20	Cessna 150 Airplane
105	259	2800	VV	0	20	Cessna 150 Airplane
106	279	2800	VV	+5	20	Cessna 150 Airplane
107	286	2800	VV	+10	20	Cessna 150 Airplane
108	394	2800	VV	-10	30	Cessna 150 Airplane
109	387	2800	VV	-5	30	Cessna 150 Airplane
110	322	2800	VV	0	30	Cessna 150 Airplane
111	347	2800	VV	+5	30	Cessna 150 Airplane
112	380	2800	VV	+10	30	Cessna 150 Airplane
113	490	2800	VV	-10	45	Cessna 150 Airplane
114	482	2800	VV	-5	45	Cessna 150 Airplane
115	415	2800	VV	0	45	Cessna 150 Airplane
116	436	2800	VV	+5	45	Cessna 150 Airplane
117	456	2800	VV	+10	45	Cessna 150 Airplane
118	59	2800	VV	N/A	N/A	Background with 0° roll, -10° pitch transitions
119	628	2800	VV	N/A	N/A	Background with 45° roll, -10° pitch transitions

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CONTROL NUMBER 73-01 Table III **DATA PLOT INDEX** Sheet 4

PAGE NO.	RUN	FREQ (MHz)	POLARI-ZATION	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
120	45	2800	RR	-10	0	Cessna 150 Airplane
121	29	2800	RR	-5	0	Cessna 150 Airplane
122	22	2800	RR	0	0	Cessna 150 Airplane
123	75	2800	RR	+5	0	Cessna 150 Airplane
124	82	2800	RR	+10	0	Cessna 150 Airplane
125	117	2800	RR	-10	5	Cessna 150 Airplane
126	110	2800	RR	-5	5	Cessna 150 Airplane
127	125	2800	RR	0	5	Cessna 150 Airplane
128	96	2800	RR	+5	5	Cessna 150 Airplane
129	89	2800	RR	+10	5	Cessna 150 Airplane
130	160	2800	RR	-10	10	Cessna 150 Airplane
131	145	2800	RR	-5	10	Cessna 150 Airplane
132	138	2800	RR	0	10	Cessna 150 Airplane
133	180	2800	RR	+5	10	Cessna 150 Airplane
134	209	2800	RR	+10	10	Cessna 150 Airplane
135	306	2800	RR	-10	20	Cessna 150 Airplane
136	299	2800	RR	-5	20	Cessna 150 Airplane
137	258	2800	RR	0	20	Cessna 150 Airplane
138	278	2800	RR	+5	20	Cessna 150 Airplane
139	285	2800	RR	+10	20	Cessna 150 Airplane
140	393	2800	RR	-10	30	Cessna 150 Airplane
141	386	2800	RR	-5	30	Cessna 150 Airplane
142	323	2800	RR	0	30	Cessna 150 Airplane
143	330	2800	RR	+5	30	Cessna 150 Airplane
144	379	2800	RR	+10	30	Cessna 150 Airplane
145	489	2800	RR	-10	45	Cessna 150 Airplane
146	484	2800	RR	-5	45	Cessna 150 Airplane
147	414	2800	RR	0	45	Cessna 150 Airplane
148	435	2800	RR	+5	45	Cessna 150 Airplane
149	469	2800	RR	+10	45	Cessna 150 Airplane
150	61	2800	RR	N/A	N/A	Background with 0° roll, -10° pitch transitions
151	629	2800	RR	N/A	N/A	Background with 45° roll, -10° pitch transitions

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CONTROL NUMBER 73-01 Table III DATA PLOT INDEX Sheet 5

PAGE NO.	RUN	FREQ (MHz)	POLARIZATION	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
152	47	2800	HH	-10	0	Cessna 150 Airplane
153	28	2800	HH	-5	0	Cessna 150 Airplane
154	21	2800	HH	0	0	Cessna 150 Airplane
155	73	2800	HH	+5	0	Cessna 150 Airplane
156	84	2800	HH	+10	0	Cessna 150 Airplane
157	119	2800	HH	-10	5	Cessna 150 Airplane
158	112	2800	HH	-5	5	Cessna 150 Airplane
159	126	2800	HH	0	5	Cessna 150 Airplane
160	98	2800	HH	+5	5	Cessna 150 Airplane
161	91	2800	HH	+10	5	Cessna 150 Airplane
162	162	2800	HH	-10	10	Cessna 150 Airplane
163	147	2800	HH	-5	10	Cessna 150 Airplane
164	140	2800	HH	0	10	Cessna 150 Airplane
165	182	2800	HH	+5	10	Cessna 150 Airplane
166	211	2800	HH	+10	10	Cessna 150 Airplane
157	320	2800	HH	-10	20	Cessna 150 Airplane
168	301	2800	HH	-5	20	Cessna 150 Airplane
169	260	2800	HH	0	20	Cessna 150 Airplane
170	280	2800	HH	[illegible]	20	Cessna 150 Airplane
171	287	2800	HH	+10	20	Cessna 1[illegible]0 Airplane
172	395	2800	HH	-10	30	Cessna 15[illegible] Airplane
173	388	2800	HH	-5	30	Cessna 150 Airplane
174	321	2800	HH	0	30	Cessna 150 Airplane
175	348	2800	HH	+5	30	Cessna 150 Airplane
176	381	2800	HH	+10	30	Cessna 150 Airplane
177	491	2800	HH	-10	45	Cessna 150 Airplane
178	483	2800	HH	-5	45	Cessna 150 Airplane
179	416	2800	HH	0	45	Cessna 150 Airplane
180	437	2800	HH	+5	45	Cessna 150 Airplane
181	457	2800	HH	+10	45	Cessna 150 Airplane
182	60	2800	HH	N/A	N/A	Background with 0° roll, -10° pitch transitions
183	630	2800	HH	N/A	N/A	Background with 45° roll, -10° pitch transitions

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CONTROL NUMBER 73-01 Table III **DATA PLOT INDEX** Sheet 6

PAGE NO.	RUN	FREQ (MHz)	POLARI-ZATION	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
184	43	2900	VV	-10	0	Cessna 150 Airplane
185	31	2900	VV	-5	0	Cessna 150 Airplane
186	18	2900	VV	0	0	Cessna 150 Airplane
187	77	2900	VV	+5	0	Cessna 150 Airplane
188	86	2900	VV	+10	0	Cessna 150 Airplane
189	121	2900	VV	-10	5	Cessna 150 Airplane
190	108	2900	VV	-5	5	Cessna 150 Airplane
191	122	2900	VV	0	5	Cessna 150 Airplane
192	100	2900	VV	+5	5	Cessna 150 Airplane
193	87	2900	VV	+10	5	Cessna 150 Airplane
194	163	2900	VV	-10	10	Cessna 150 Airplane
195	143	2900	VV	-5	10	Cessna 150 Airplane
196	142	2900	VV	0	10	Cessna 150 Airplane
197	178	2900	VV	+5	10	Cessna 150 Airplane
198	207	2900	VV	+10	10	Cessna 150 Airplane
199	304	2900	VV	-10	20	Cessna 150 Airplane
200	303	2900	VV	-5	20	Cessna 150 Airplane
201	256	2900	VV	0	20	Cessna 150 Airplane
202	282	2900	VV	+5	20	Cessna 150 Airplane
203	283	2900	VV	+10	20	Cessna 150 Airplane
204	391	2900	VV	-10	30	Cessna 150 Airplane
205	389	2900	VV	-5	30	Cessna 150 Airplane
206	327	2900	VV	0	30	Cessna 150 Airplane
207	328	2900	VV	+5	30	Cessna 150 Airplane
208	377	2900	VV	+10	30	Cessna 150 Airplane
209	487	2900	VV	-10	45	Cessna 150 Airplane
210	486	2900	VV	-5	45	Cessna 150 Airplane
211	412	2900	VV	0	45	Cessna 150 Airplane
212	439	2900	VV	+5	45	Cessna 150 Airplane
213	440	2900	VV	+10	45	Cessna 150 Airplane
214	57	2900	VV	N/A	N/A	Background with 0^{o} roll, -10^{o} pitch transitions
215	626	2900	VV	N/A	N/A	Background with 45^{o} roll, -10^{o} pitch transitions

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CONTROL NUMBER 73-01 Table III

DATA PLOT INDEX

Sheet 7

PAGE NO.	RUN	FREQ (MHz)	POLARIZATION	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
216	44	2900	RR	-10	0	Cessna 150 Airplane
217	30	2900	RR	-5	0	Cessna 150 Airplane
218	19	2900	RR	0	0	Cessna 150 Airplane
219	76	2900	RR	+5	0	Cessna 150 Airplane
220	85	2900	RR	+10	0	Cessna 150 Airplane
221	120	2900	RR	-10	5	Cessna 150 Airplane
222	109	2900	RR	-5	5	Cessna 150 Airplane
223	123	2900	RR	0	5	Cessna 150 Airplane
224	99	2900	RR	+5	5	Cessna 150 Airplane
225	88	2900	RR	+10	5	Cessna 150 Airplane
226	162	2900	RR	-10	10	Cessna 150 Airplane
227	144	2900	RR	-5	10	Cessna 150 Airplane
228	141	2900	RR	0	10	Cessna 150 Airplane
229	179	2900	RR	+5	10	Cessna 150 Airplane
230	206	2900	RR	+10	10	Cessna 150 Airplane
231	305	2900	RR	-10	20	Cessna 150 Airplane
232	302	2900	RR	-5	20	Cessna 150 Airplane
233	252	2900	RR	0	20	Cessna 150 Airplane
234	281	2900	RR	+5	20	Cessna 150 Airplane
235	294	2900	RR	+10	20	Cessna 150 Airplane
236	[illegible]	2900	RR	-10	30	Cessna 150 Airplane
237	390	2900	RR	-5	30	Cessna 150 Airplane
238	326	2900	RR	0	30	Cessna 150 Airplane
239	329	2900	RR	+5	30	Cessna 150 Airplane
240	379	2900	RR	+10	30	Cessna 150 Airplane
241	488	2900	RR	-10	45	Cessna 150 Airplane
242	485	2900	RR	-5	45	Cessna 150 Airplane
243	413	2900	RR	0	45	Cessna 150 Airplane
244	438	2900	RR	+5	45	Cessna 150 Airplane
245	441	2900	RR	+10	45	Cessna 150 Airplane
246	38	2900	RR	N/A	N/A	Background with 0° roll, -10° pitch transitions
247	627	2900	RR	N/A	N/A	Background with 45° roll, -10° pitch transitions

RED 12 007

CONTROL NUMBER 73-01 Table III DATA PLOT INDEX Sheet 8

PAGE NO.	RUN	FREQ (MHz)	POLARIZATION	PITCH ANGLE	ROLL ANGLE	TARGET CONFIGURATION AND REMARKS
248	1515	1250	VV	0	0	Cessna 150 Airplane
249	1514	1250	HH	0	0	Cessna 150 Airplane
250	1545	1250	RR	0	0	Cessna 150 Airplane
251	1512	1350	VV	0	0	Cessna 150 Airplane
252	1513	1350	HH	0	0	Cessna 150 Airplane
253	1544	1350	RR	0	0	Cessna 150 Airplane
254	1553	5000	VV	0	0	Cessna 150 Airplane
255	1554	5000	HH	0	0	Cessna 150 Airplane
256	1556	5400	VV	0	0	Cessna 150 Airplane
257	1555	5400	HH	0	0	Cessna 150 Airplane
258	1507	1250	VV	N/A	N/A	Background with two columns and two transitions
259	1506	1250	HH	N/A	N/A	Background with two columns and two transitions
260	1504	1350	VV	N/A	N/A	Background with two columns and two transitions
261	1505	1350	HH	N/A	N/A	Background with two columns and two transitions
262	1572	5000	VV	N/A	N/A	Background with two columns and two transitions
263	1571	5000	HH	N/A	N/A	Background with two columns and two transitions
264	1569	5400	VV	N/A	N/A	Background with two columns and two transitions
265	1570	5400	HH	N/A	N/A	Background with two columns and two transitions

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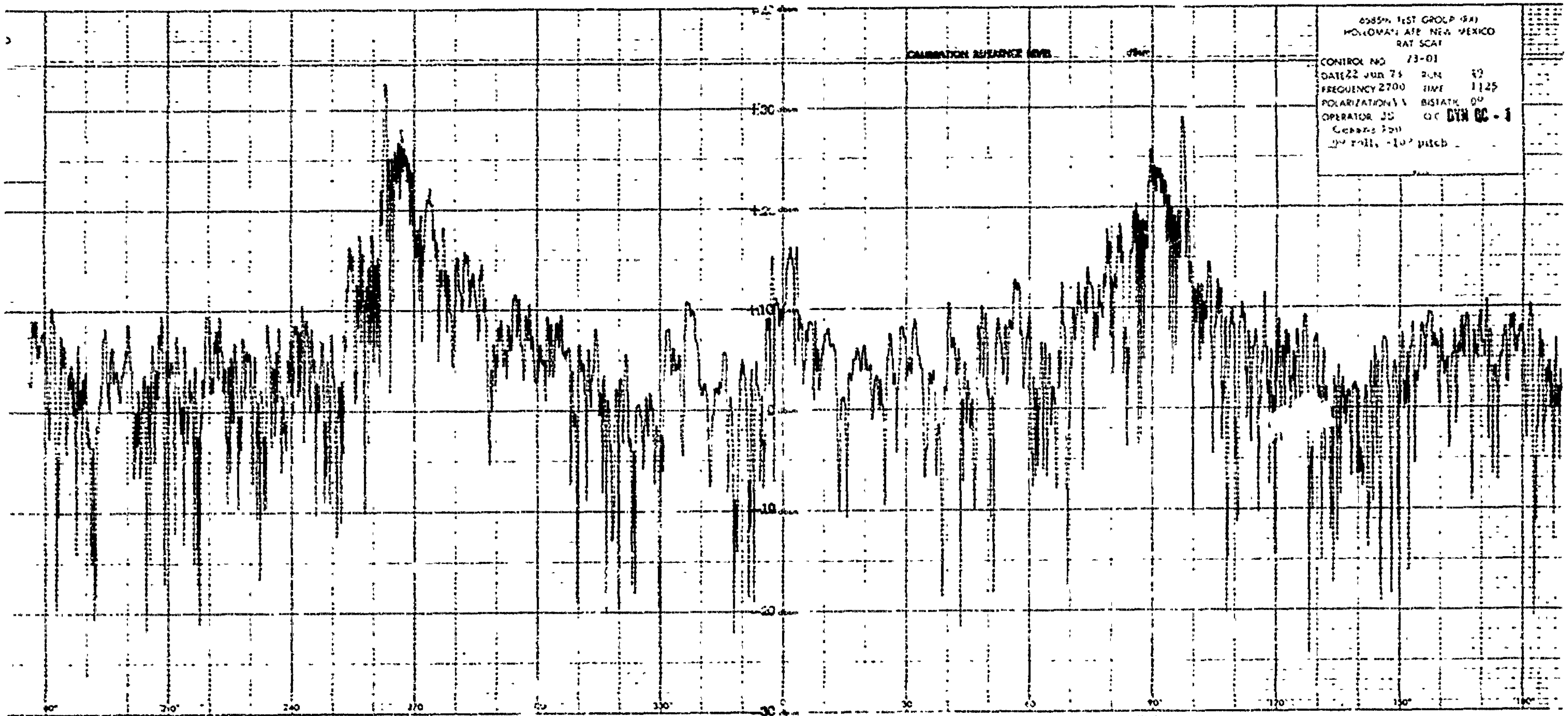
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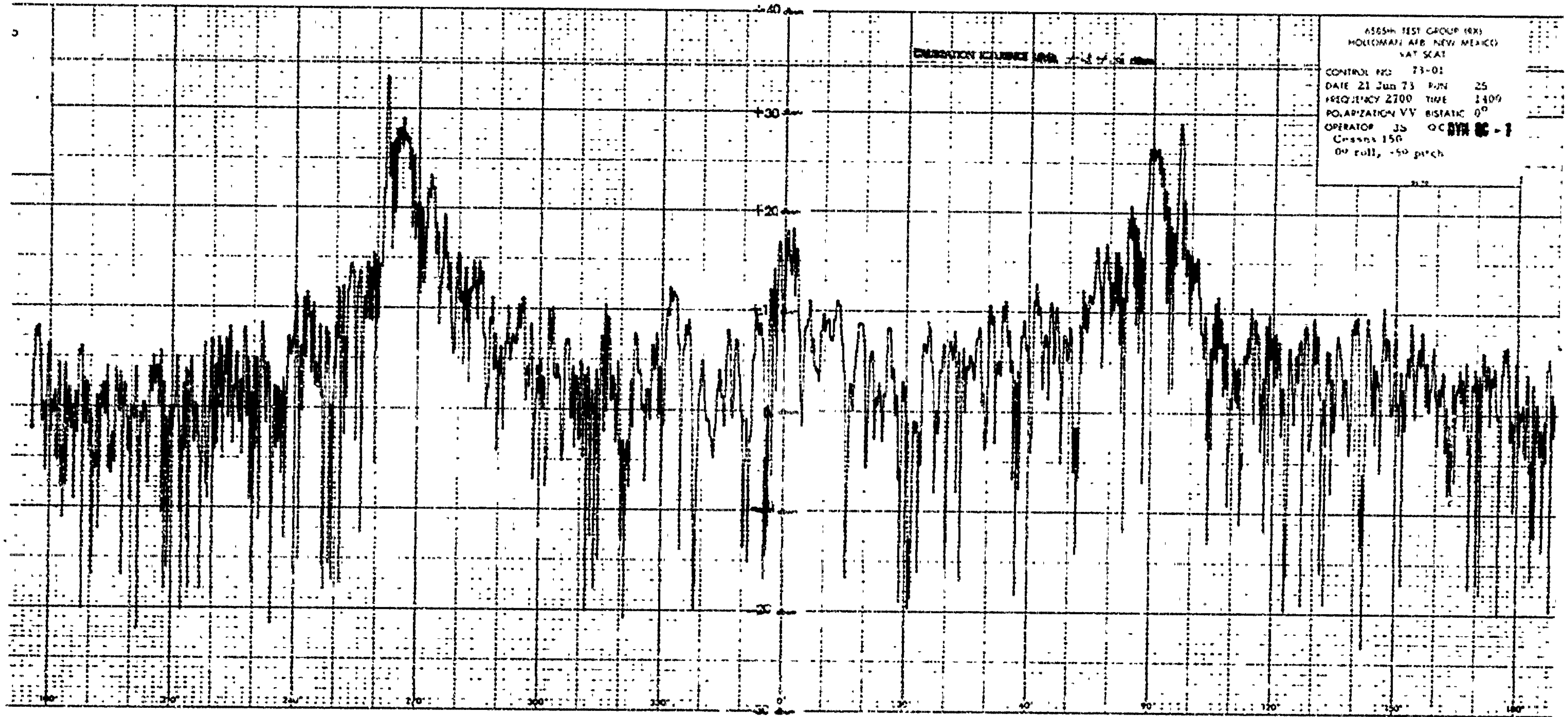
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 22 Jun 73 RUN 32
FREQUENCY 2700 TIME 1125
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC DYN QC - 1
CALIBRATION REFERENCE LEVEL
+30 dbsm
+20 dbsm
+10
0 dbsm
-10 dbsm
-20 dbsm
-30 dbsm
90°
210°
240
270
330°
0
30
60
90°
120°
150°
180°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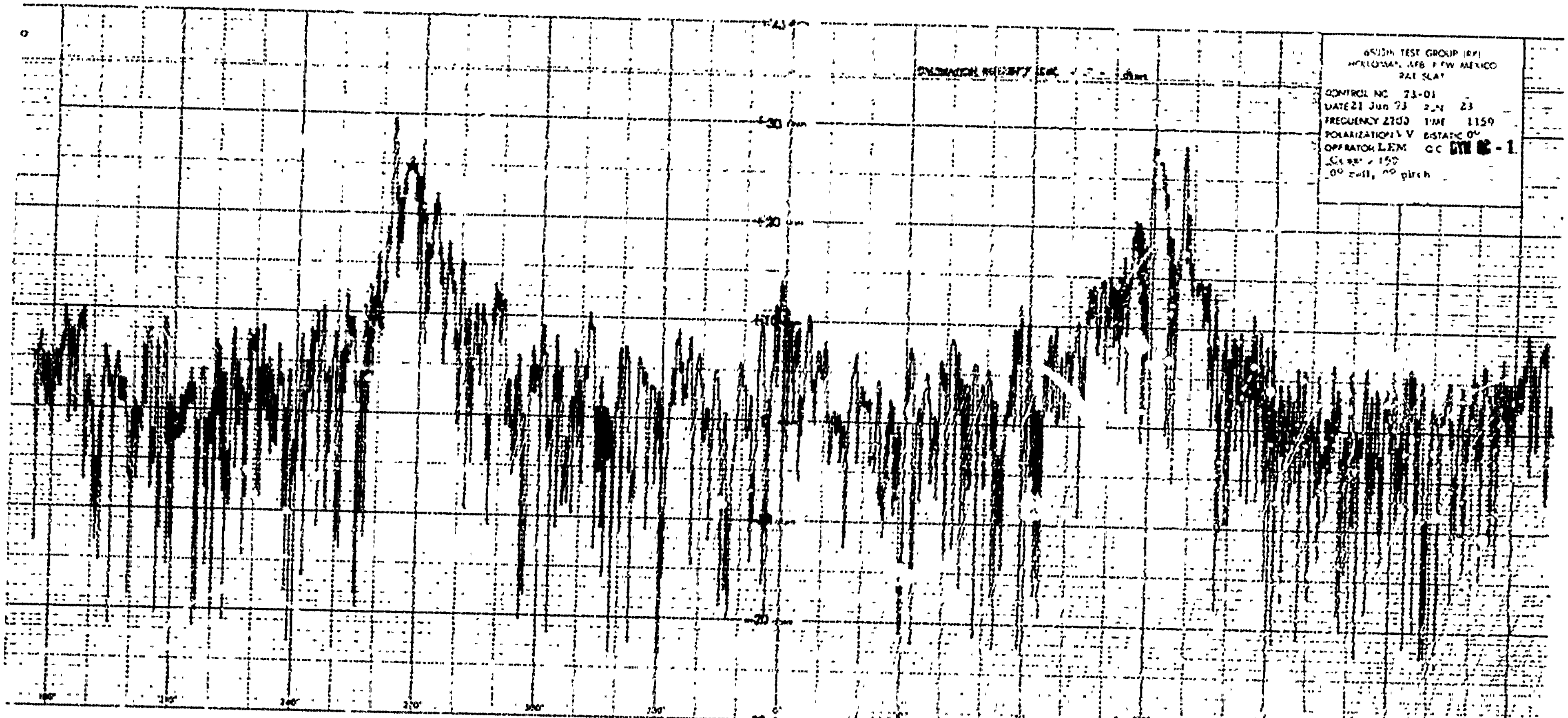
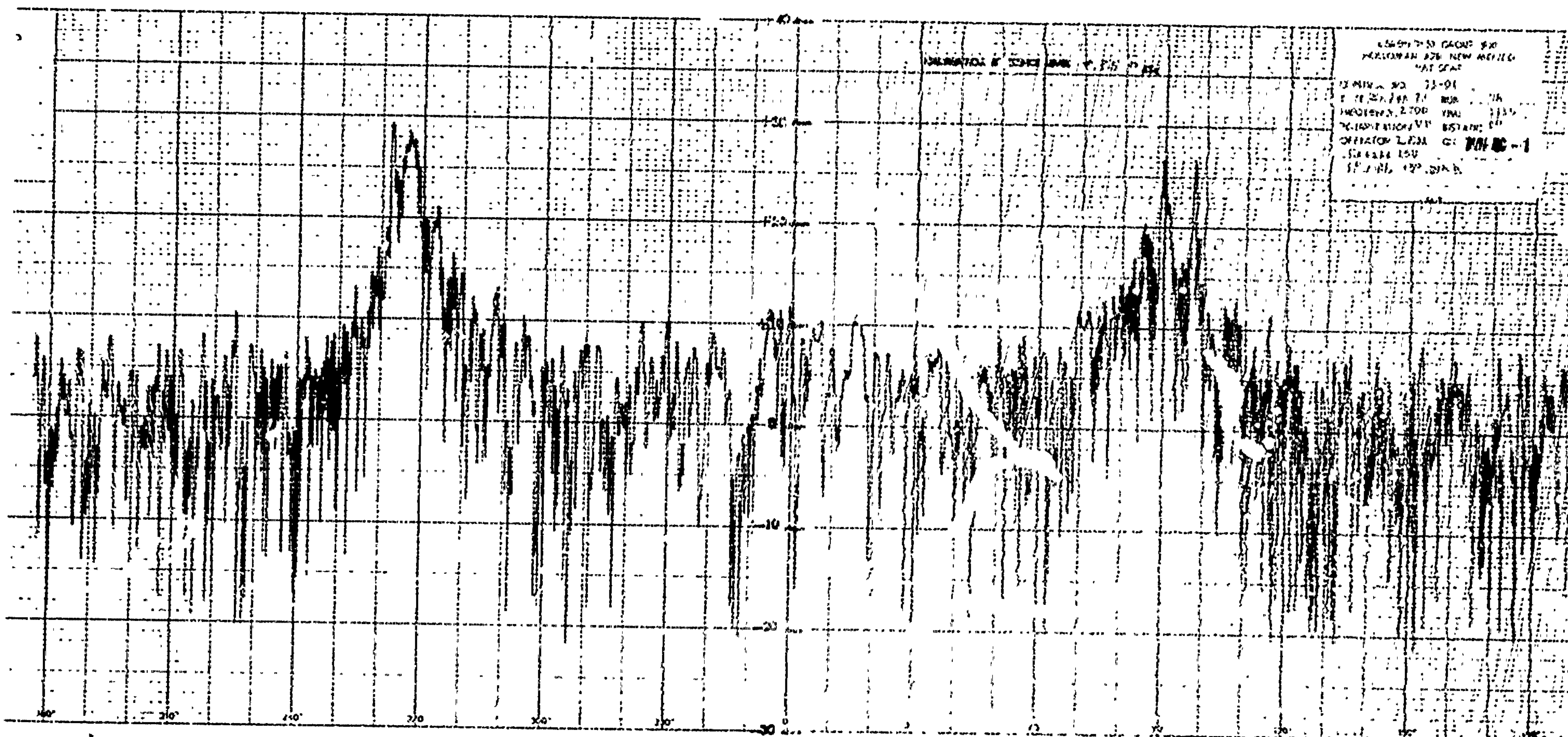
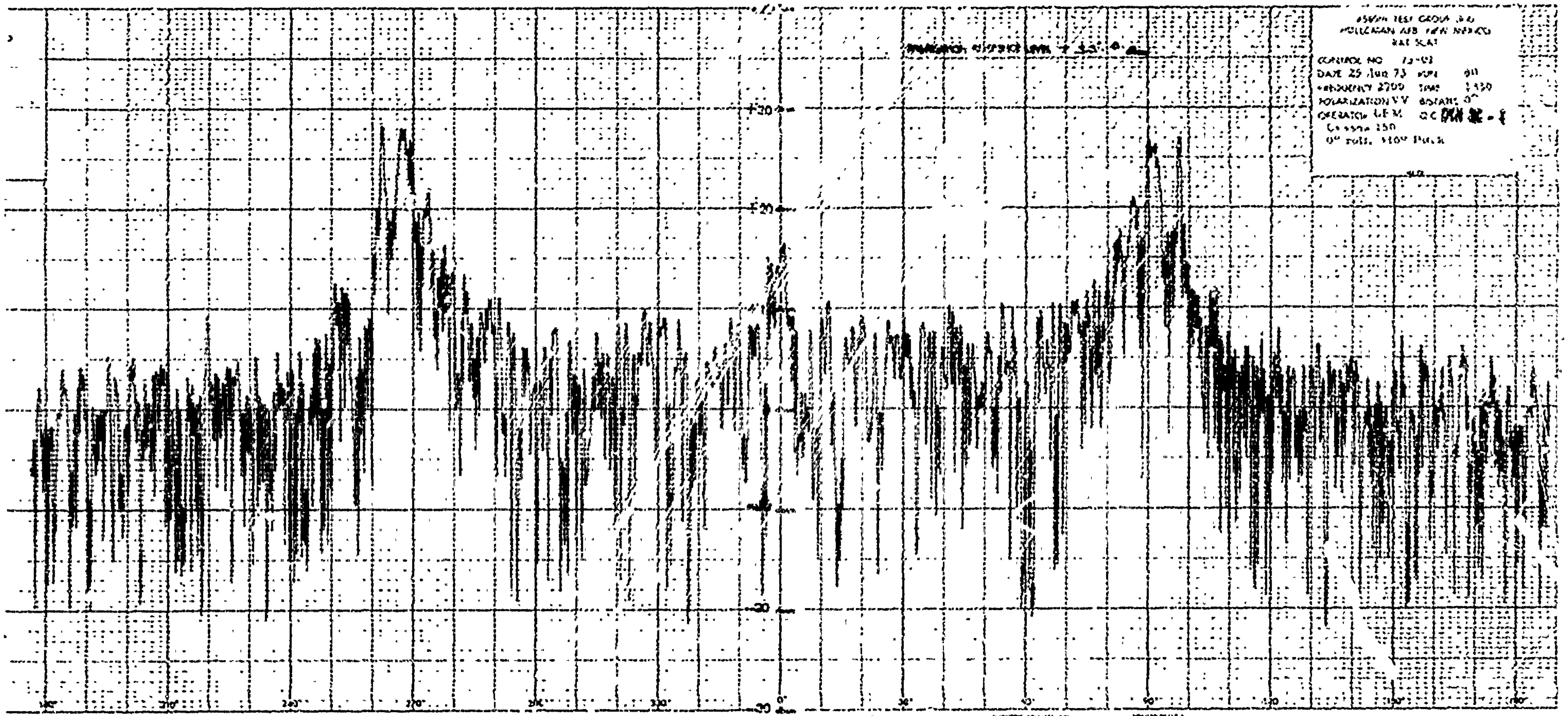
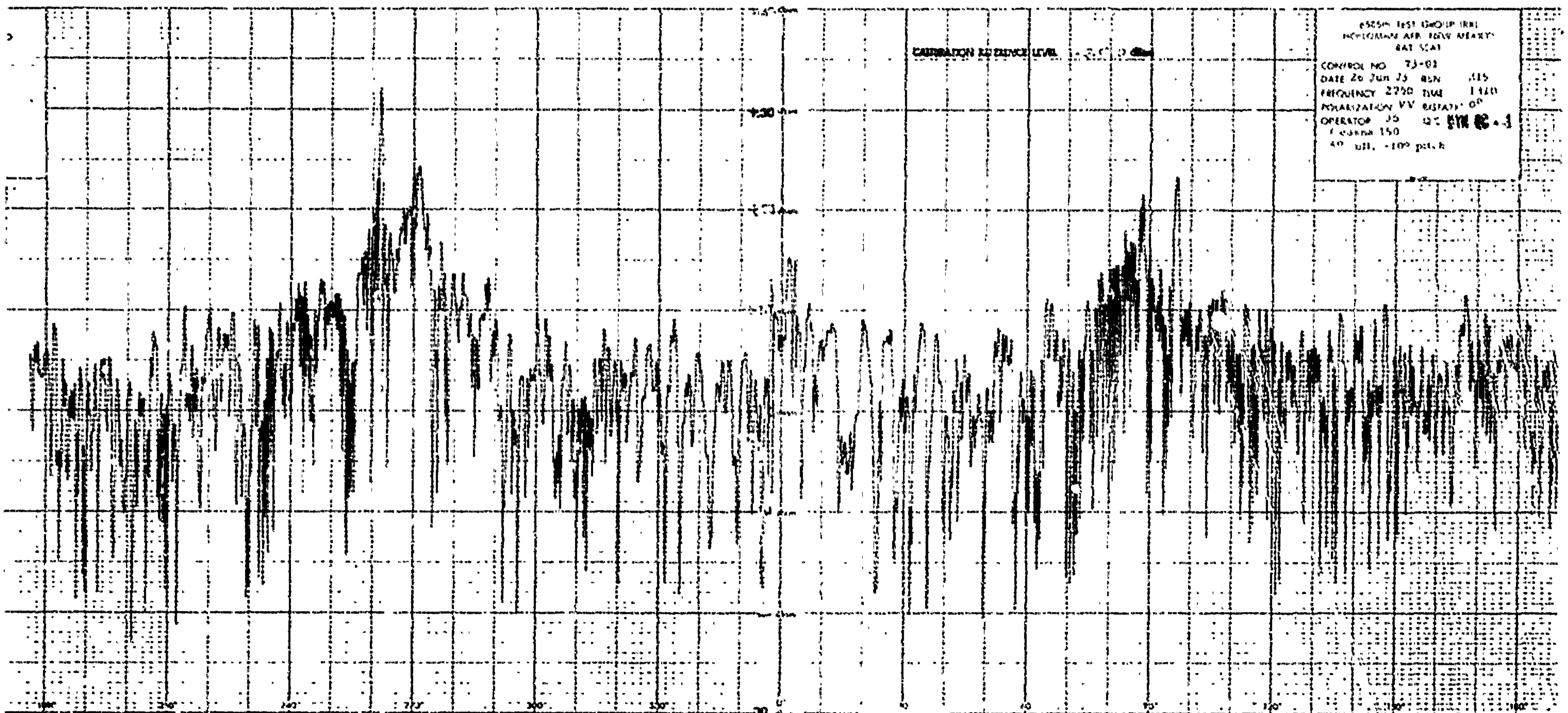
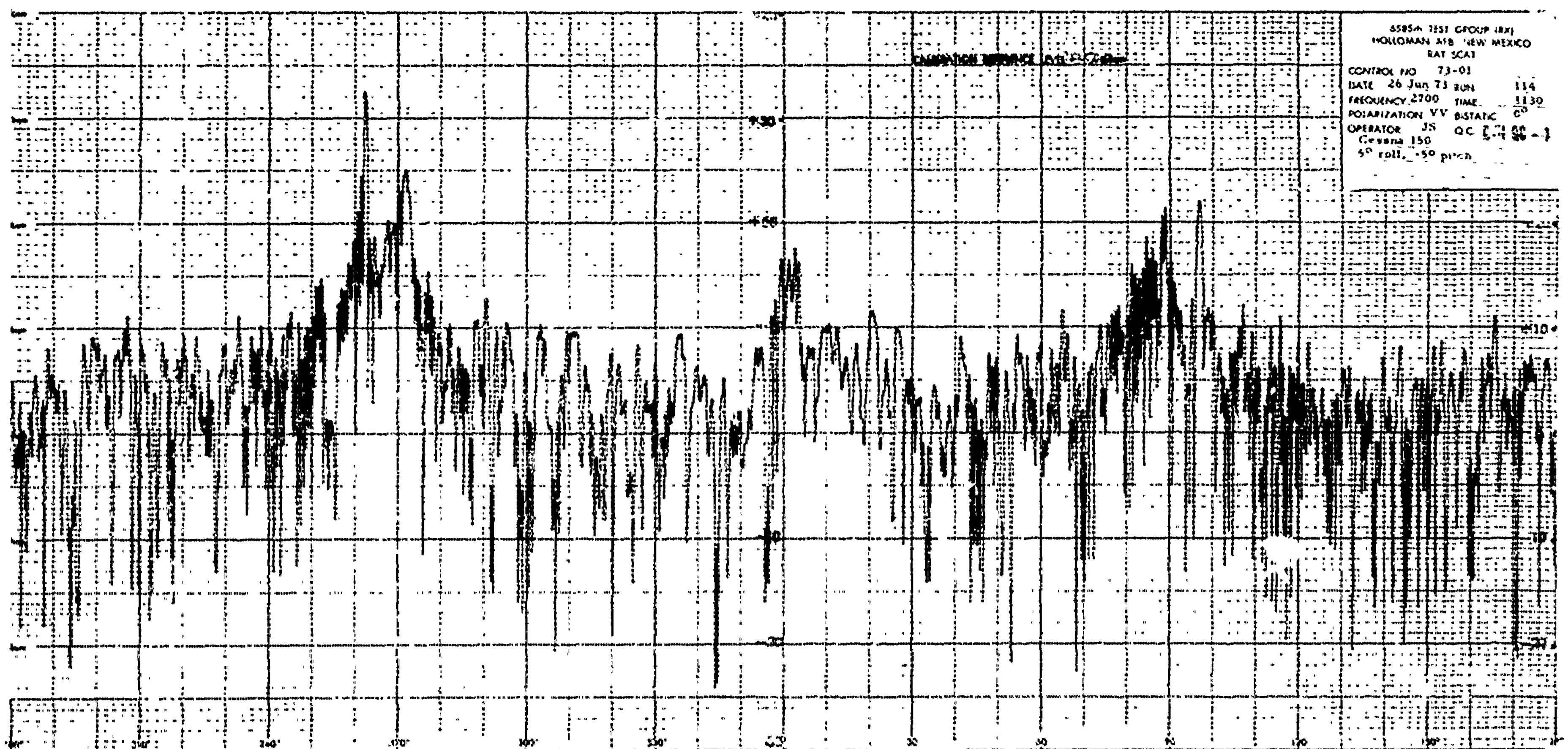
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 21 Jun 73 RUN 25
FREQUENCY 2700 TIME 1400
POLARIZATION VV BISTATIC 0°
OPERATOR JS OC
Cessna 150
0° roll, -5° pitch
+40
+30
+20
-20
-30
180°
210°
240°
270°
300°
330°
0°
30°
40°
90°
120°
150°
180°

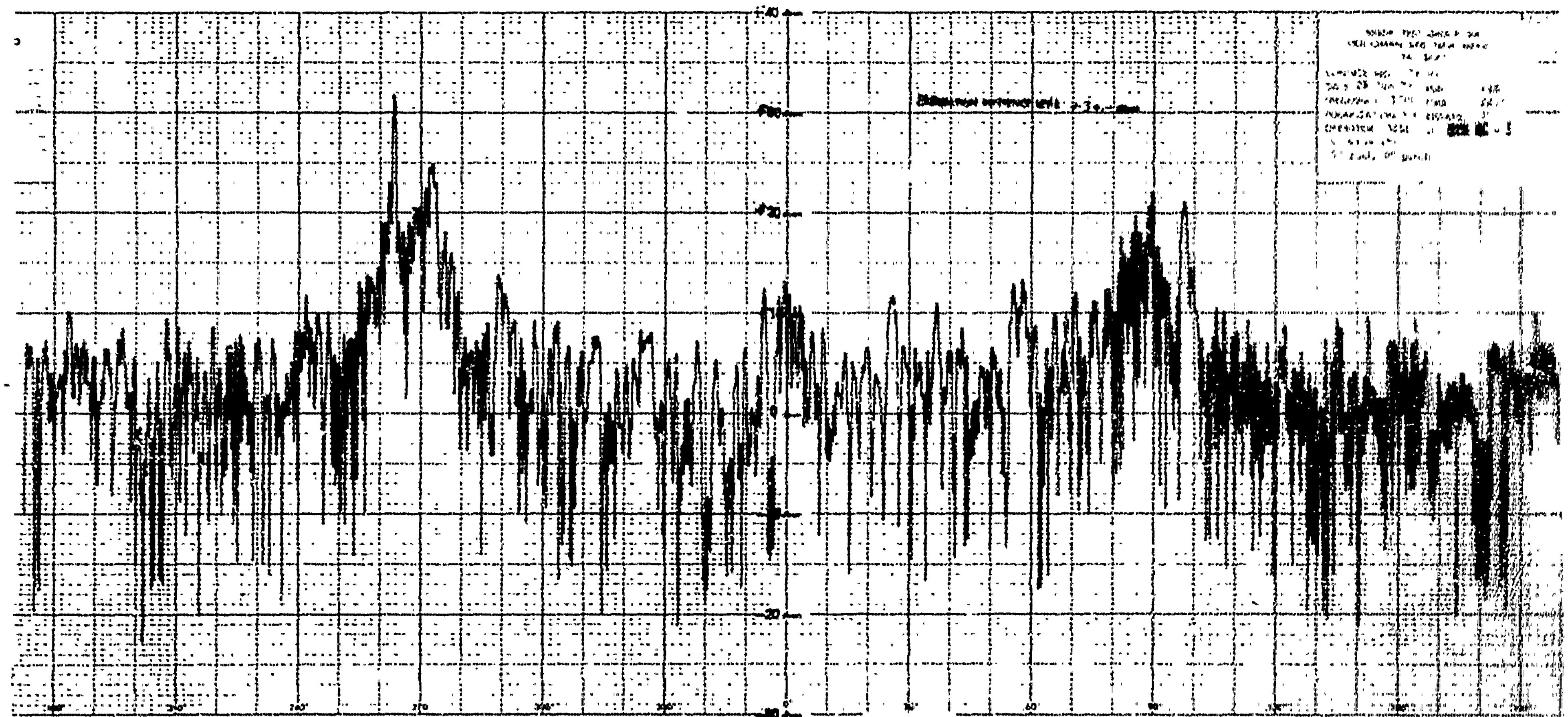

TEST GROUP
CONTROL NO 73-01
DATE 21 Jun 73
TIME 1159
BISTATIC 0°
OPERATOR LEM
180°
210°
240°
270°
300°
330°
0°
270°
+20
-20
-30 dbm

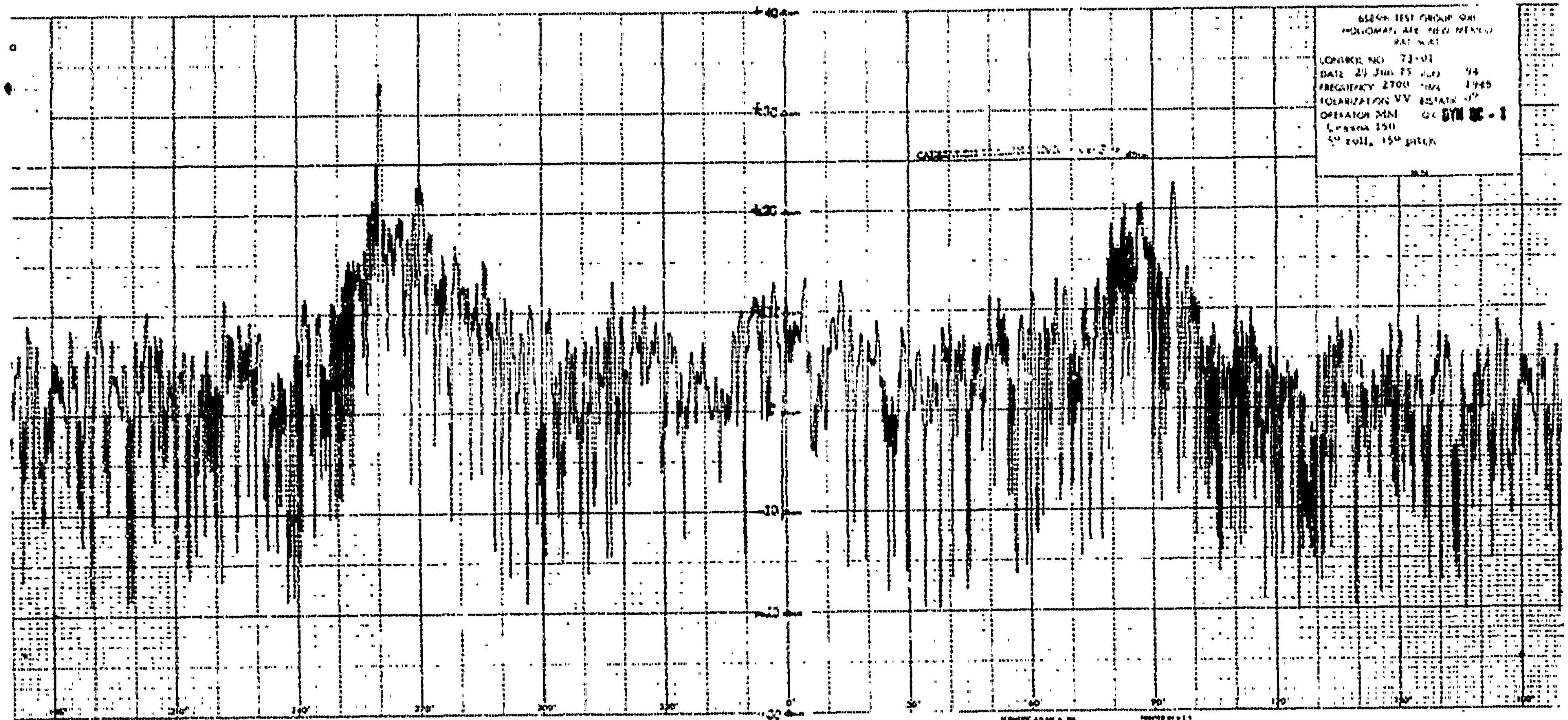


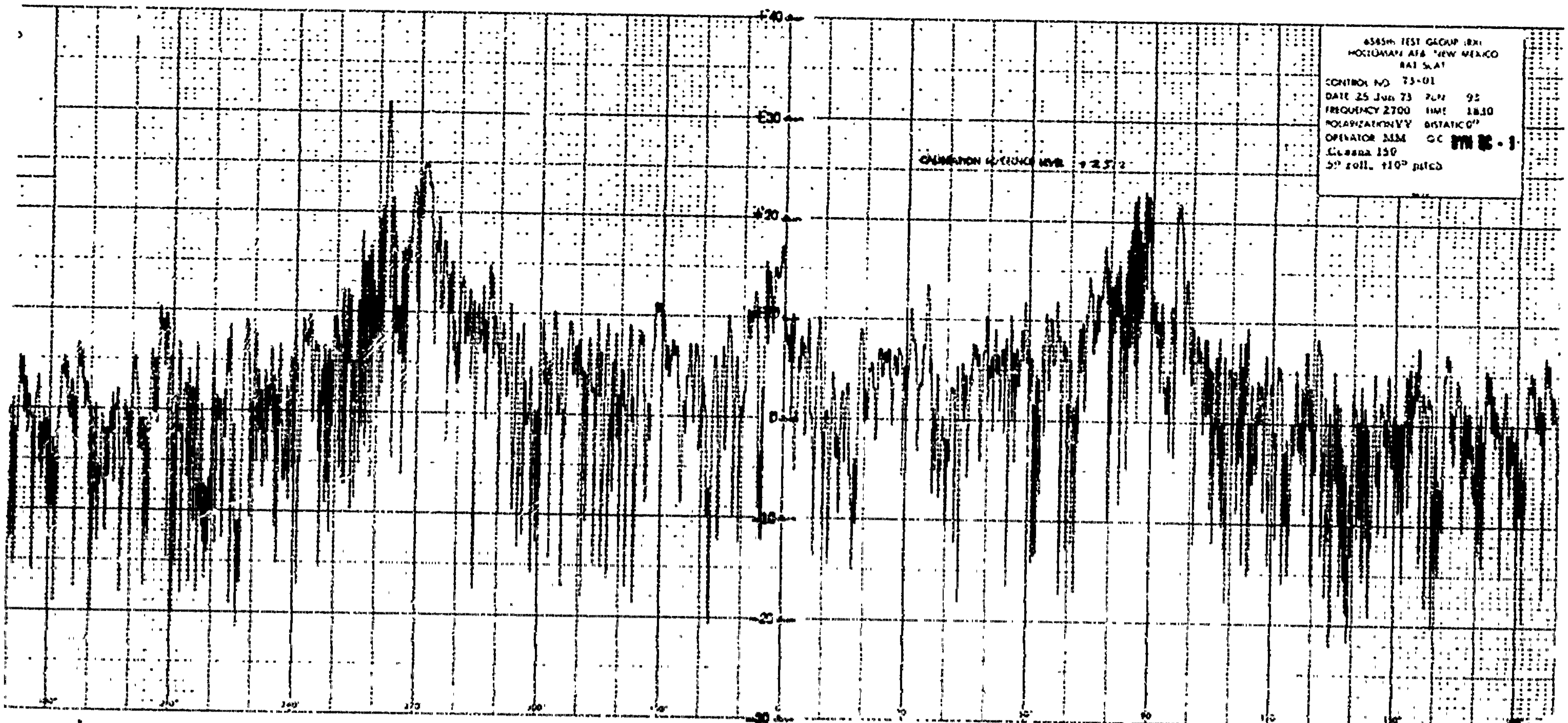

HOLLOMAN AFB NEW MEXICO
DATE 25 Jun 73
FREQUENCY 2700
+20
-20
0°
90°

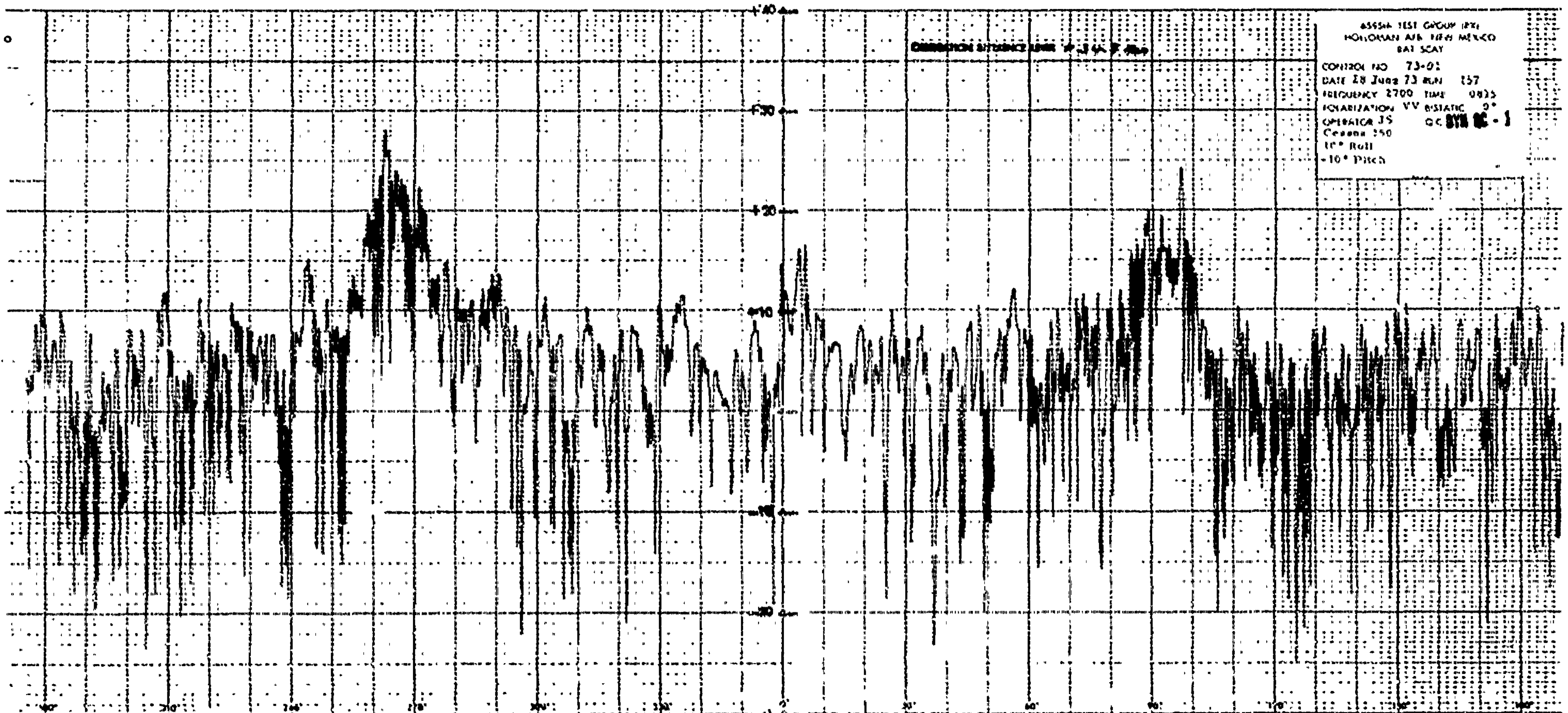

CALIBRATION REFERENCE LEVEL
CONTROL NO
DATE
FREQUENCY
POLARIZATION VV
OPERATOR


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 26 Jun 73 RUN 114
FREQUENCY 2700 TIME 1130
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
5° roll, -5° pitch
+30
+20
+10
0
-10
-20
310°
240°
270°
300°
330°
30
60
90
120
150°

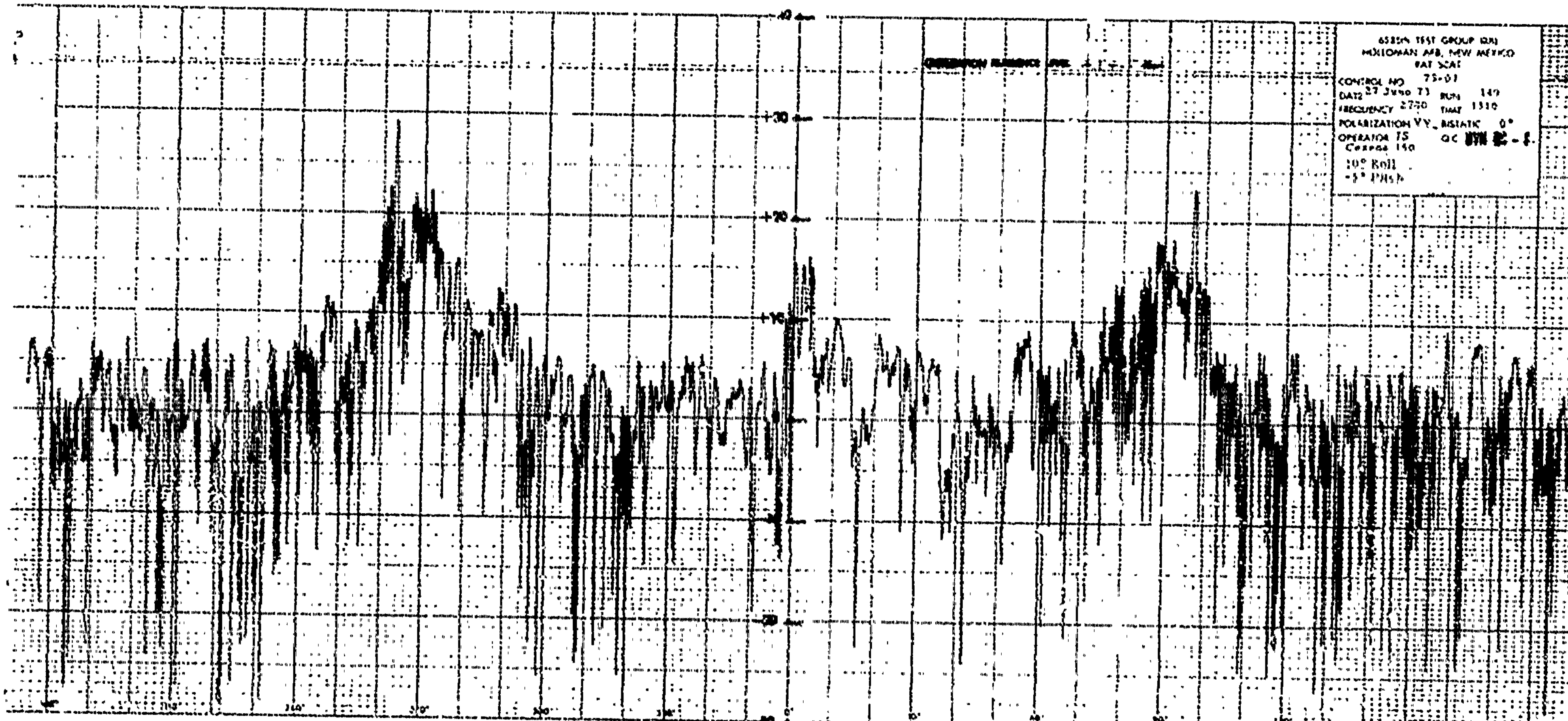


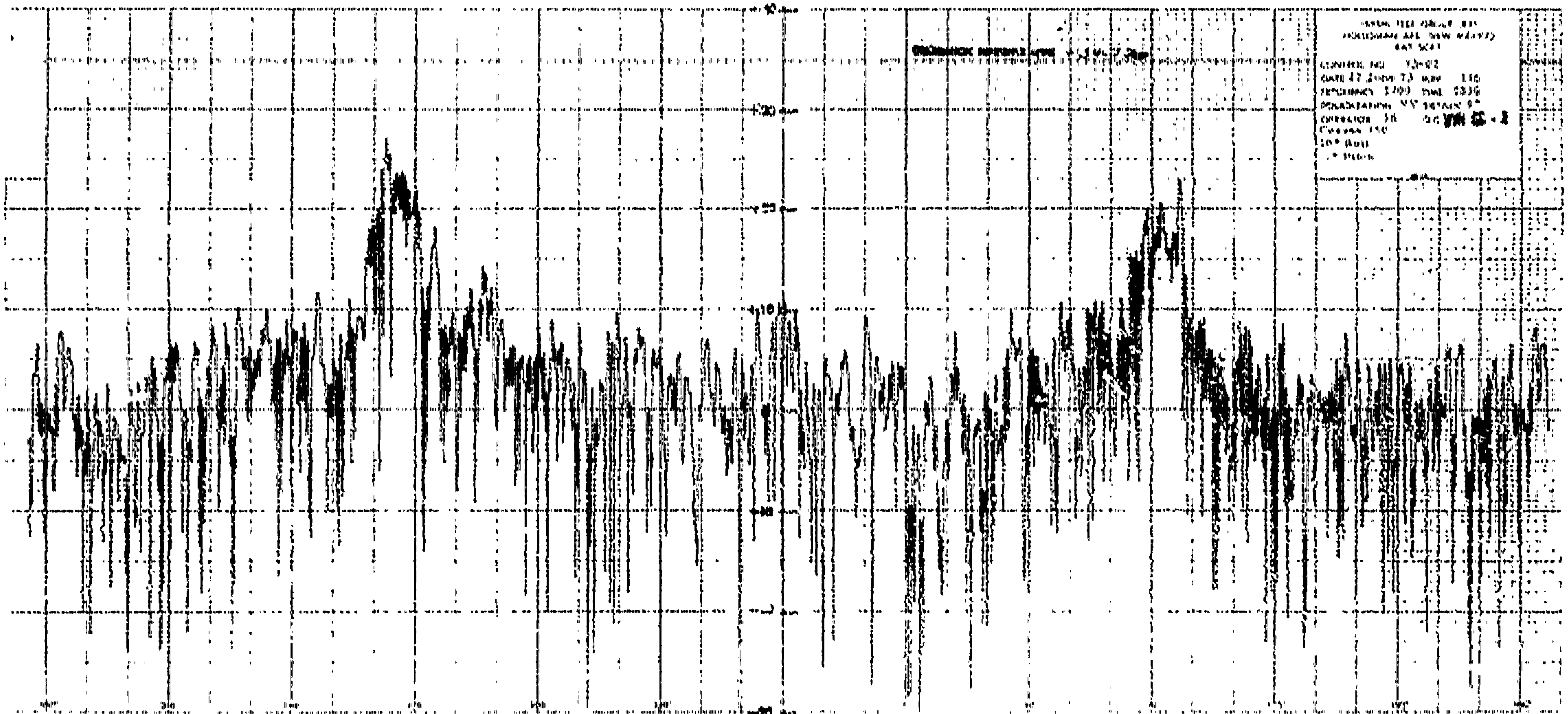

6585th TEST GROUP (RA)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73
94
FREQUENCY 2700
1945
POLARIZATION VV
OPERATOR MNI
SYN SC - 1
Cessna 150
5° roll, 15° pitch
+40 dbsm
+30 dbsm
+20 dbsm
-10 dbsm
-20 dbsm
-30 dbsm
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

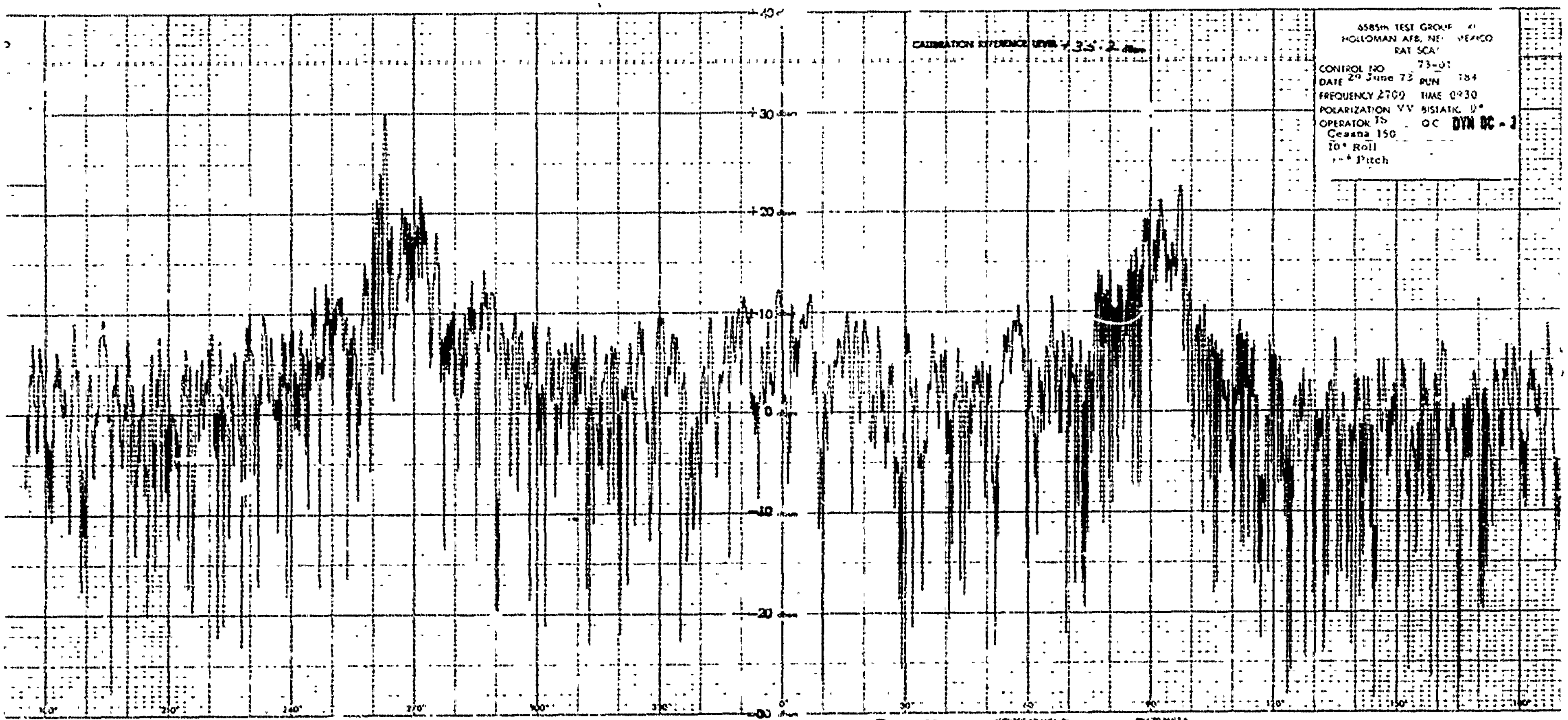

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73 RUN 92
FREQUENCY 2700 TIME 1830
POLARIZATION VV BISTATIC 0°
OPERATOR MM GC
Cessna 150
5° roll, +10° pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30



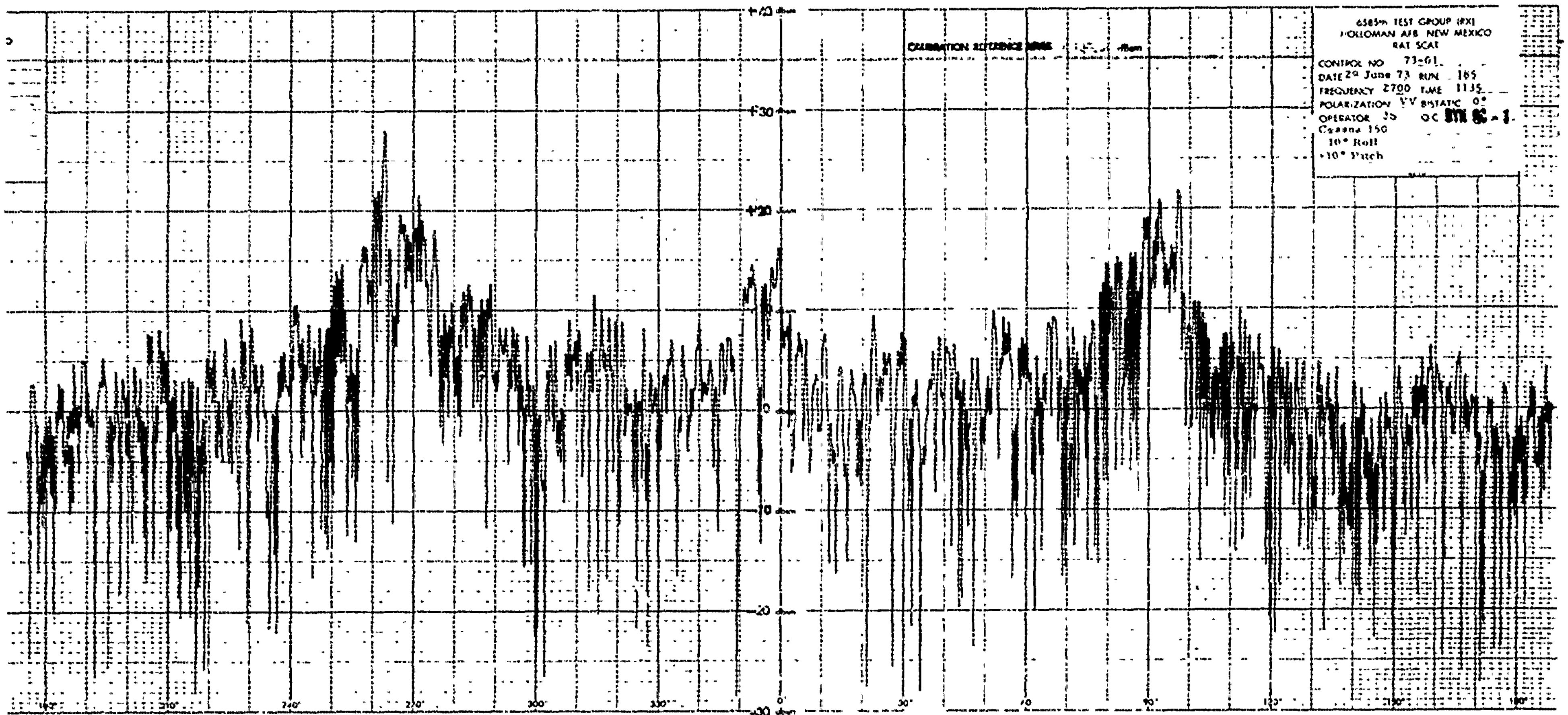
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 28 June 73 RUN 157
FREQUENCY 2700 TIME 0835
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC
Cessna 150
10° Roll
-10° Pitch
+40
+30
+20
+10
-10
-20
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

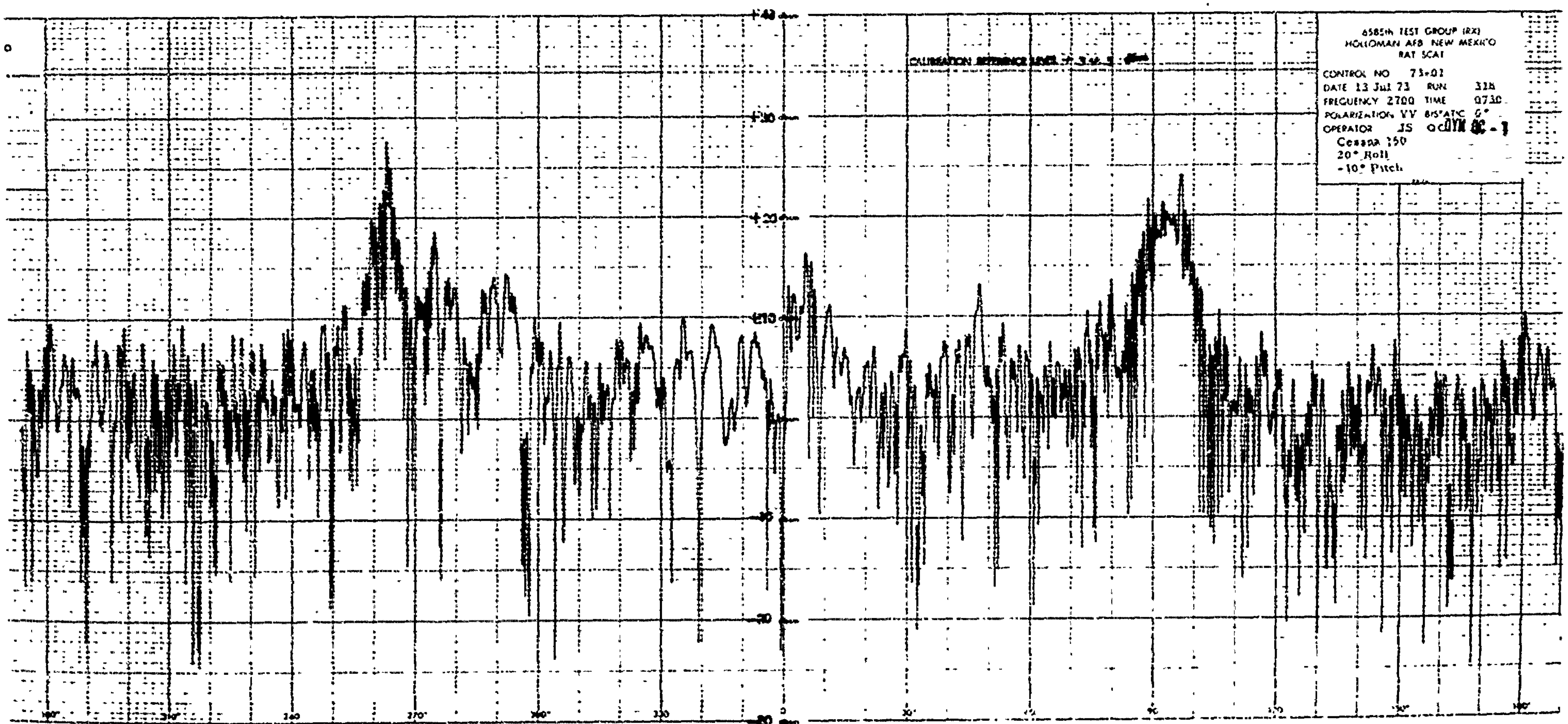

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 75-01
DATE 27 June 73 RUN 149
FREQUENCY 2720 TIME 1310
POLARIZATION VV BISTATIC 0°
OPERATOR TS
Cessna 150
10° Roll
-5° Pitch
+30
+20
+10
-20
0°
30°
60°
90°

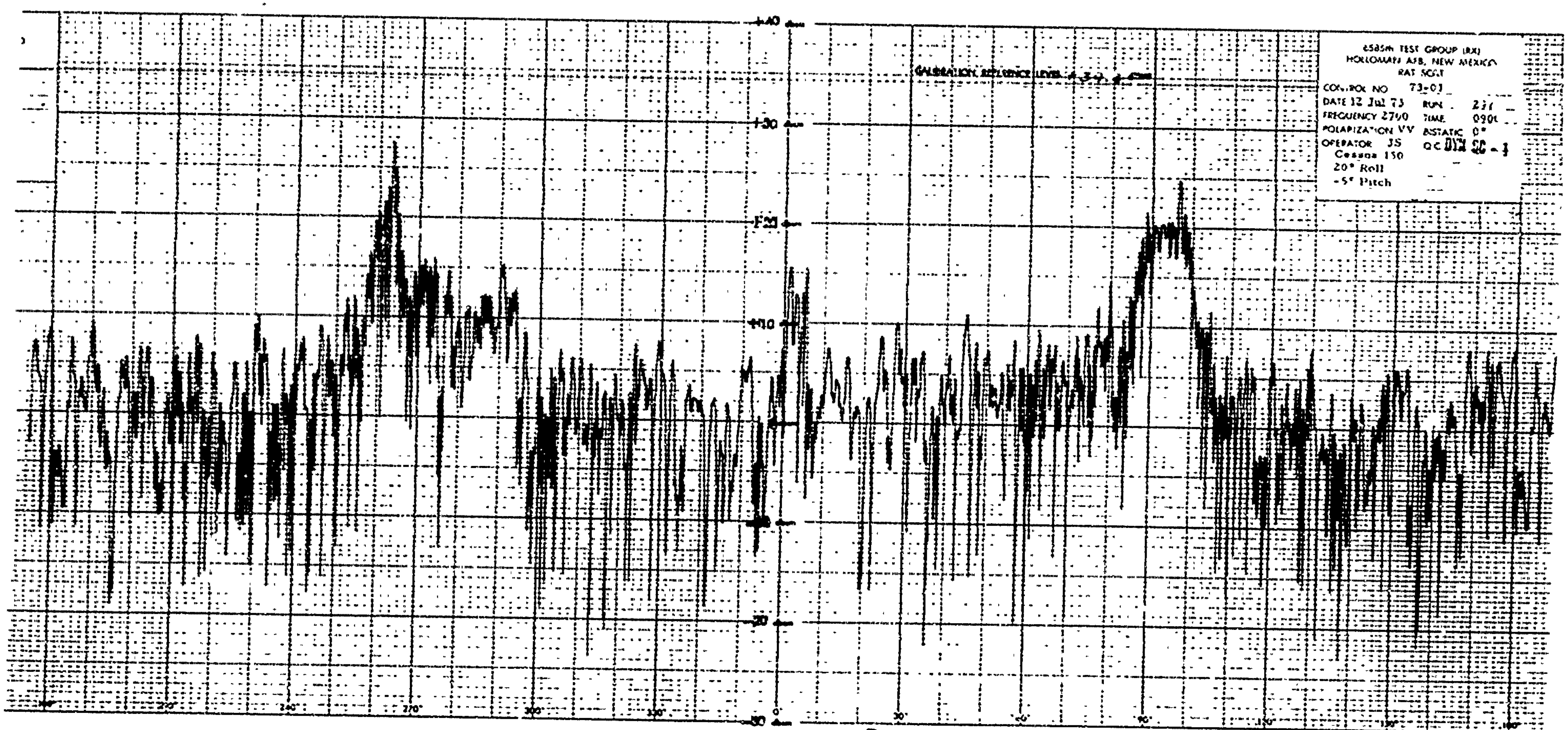


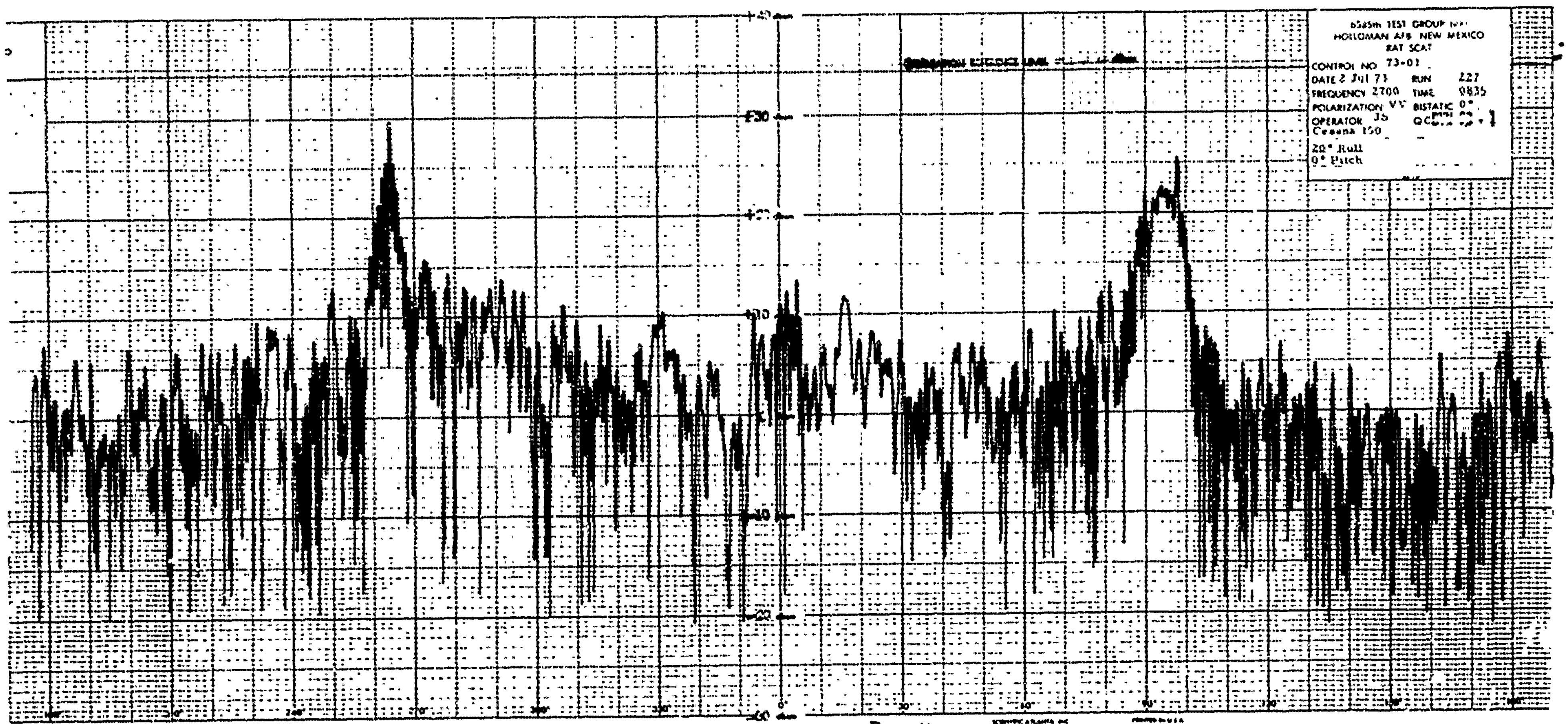


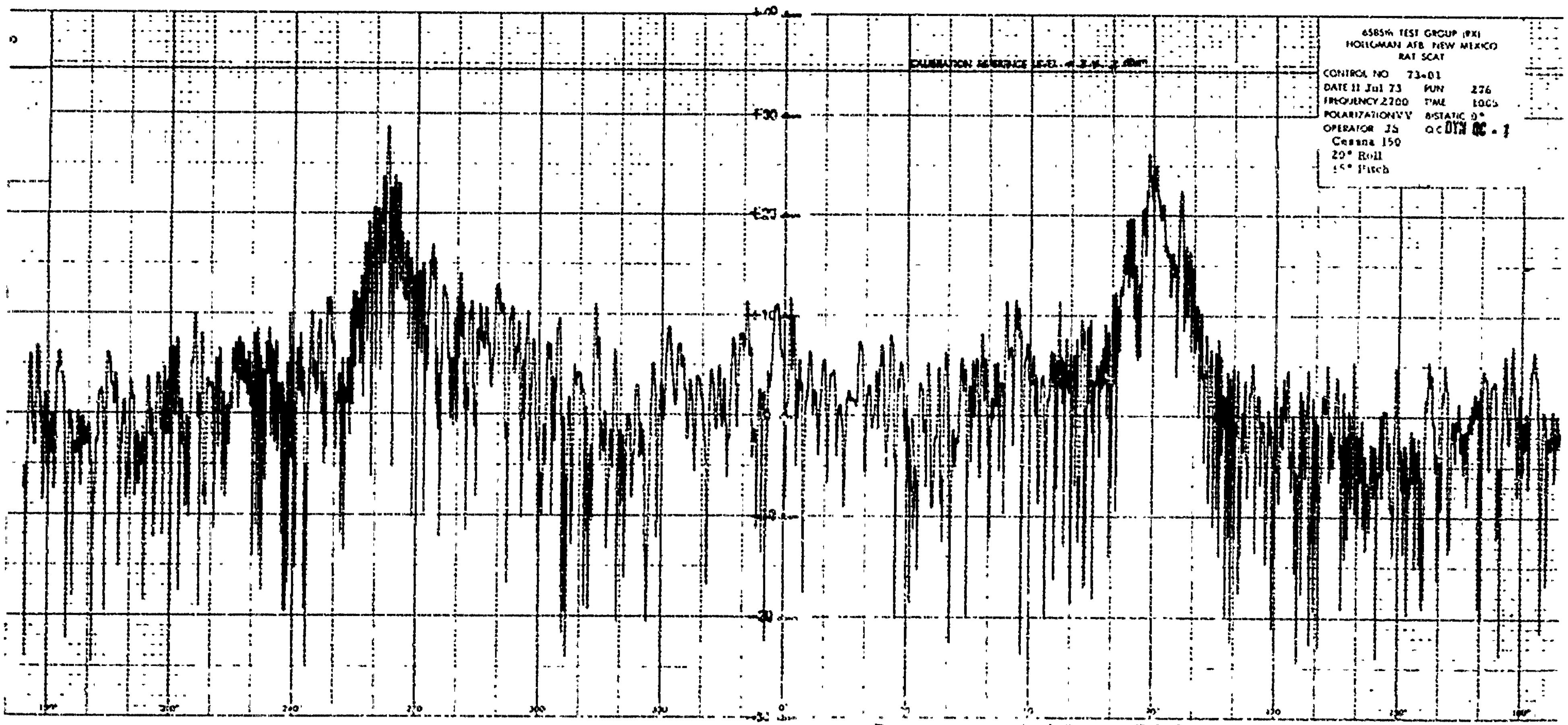
6585th TEST GROUP
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 June 73 RUN 184
FREQUENCY 2700 TIME 0930
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC
DYN RC - 3
Cessna 150
10° Roll
+4° Pitch
CALIBRATION REFERENCE LEVEL +33.2 dBsm
+30 dBsm
+20 dBsm
+10
0
-10
-20
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°

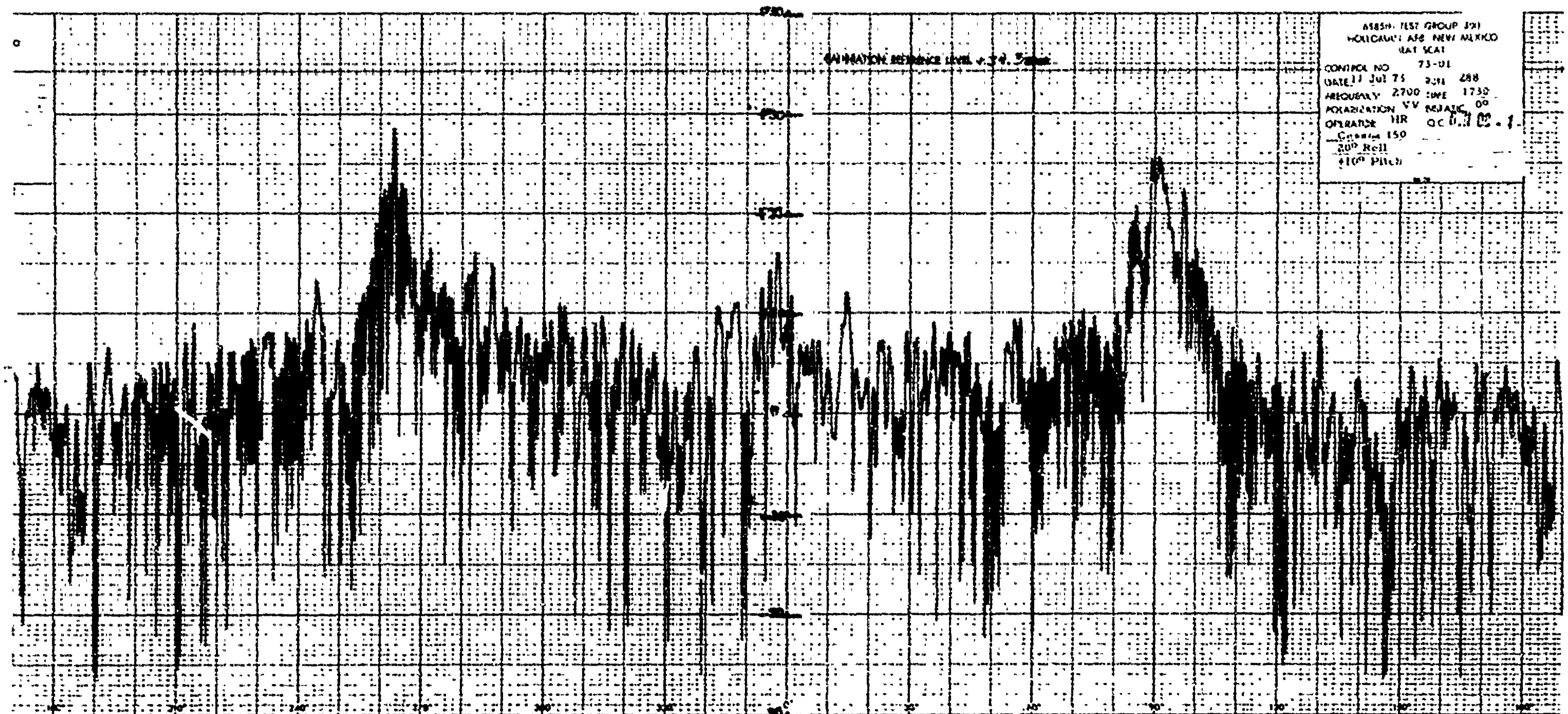

6585th TEST GROUP (PX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-61
DATE 29 June 73 RUN 165
FREQUENCY 2700 TIME 1135
POLARIZATION VV BISTATIC 0°
OPERATOR 35
Cessna 150
10° Roll
+10° Pitch
CALIBRATION REFERENCE
+40 dbsm
+30 dbsm
+20 dbsm
0 dbsm
-10 dbsm
-20 dbsm
-30 dbsm
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

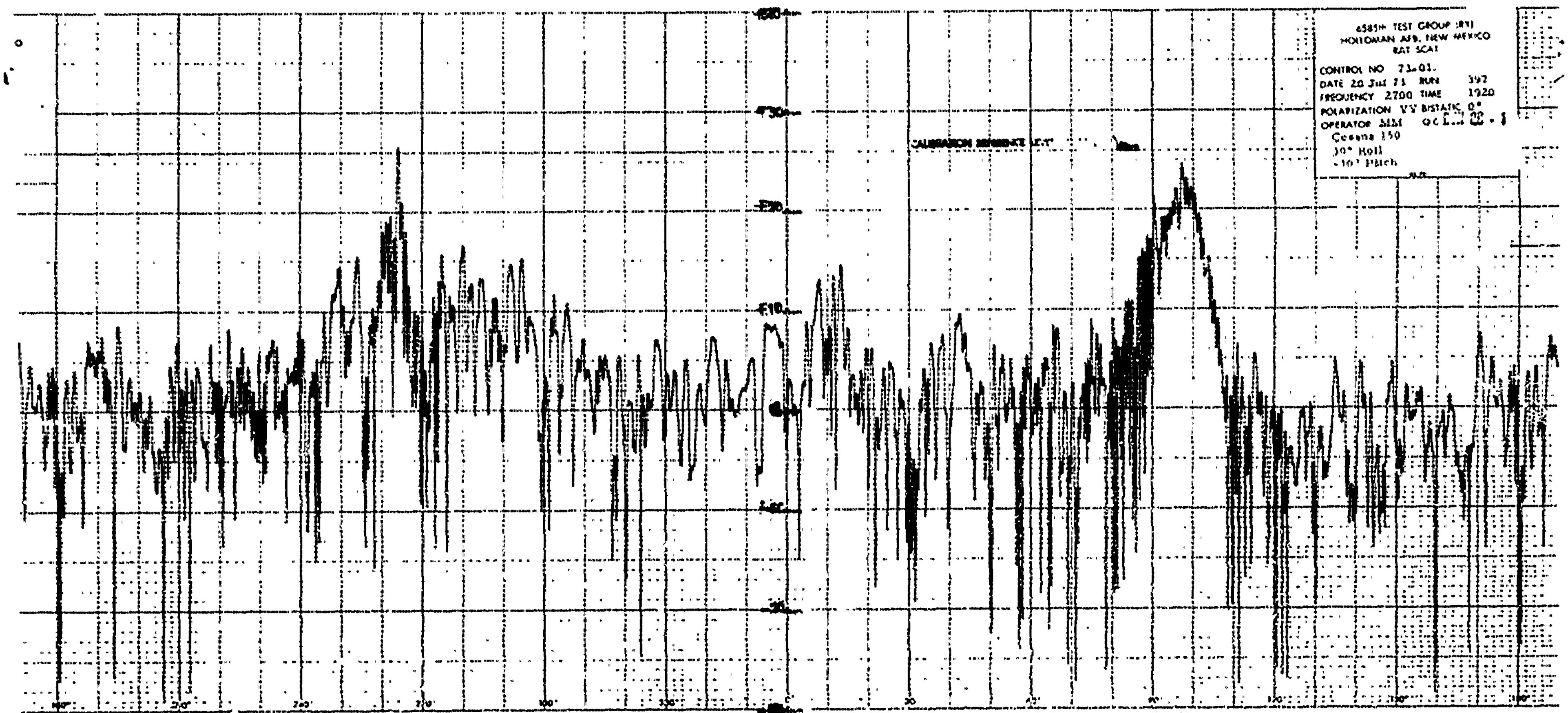

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 13 Jul 73 RUN 318
FREQUENCY 2700 TIME 0730
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
-10° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240
270°
300°
330
0
30°
60
90
120
150°
180°

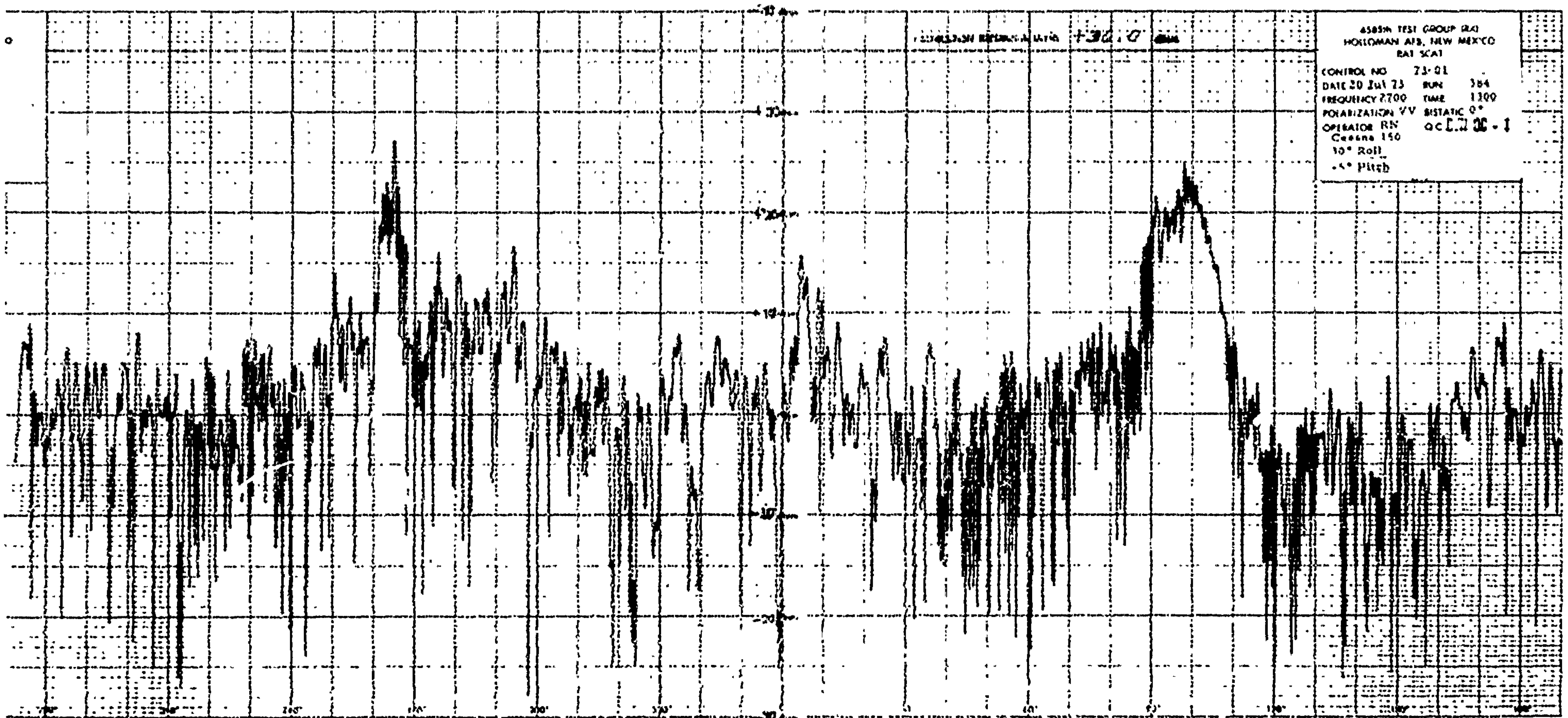

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-03
DATE 12 Jul 73 RUN 231
FREQUENCY 2790 TIME 0900
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC
Cessna 150
20° Roll
-5° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
-20
-30
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

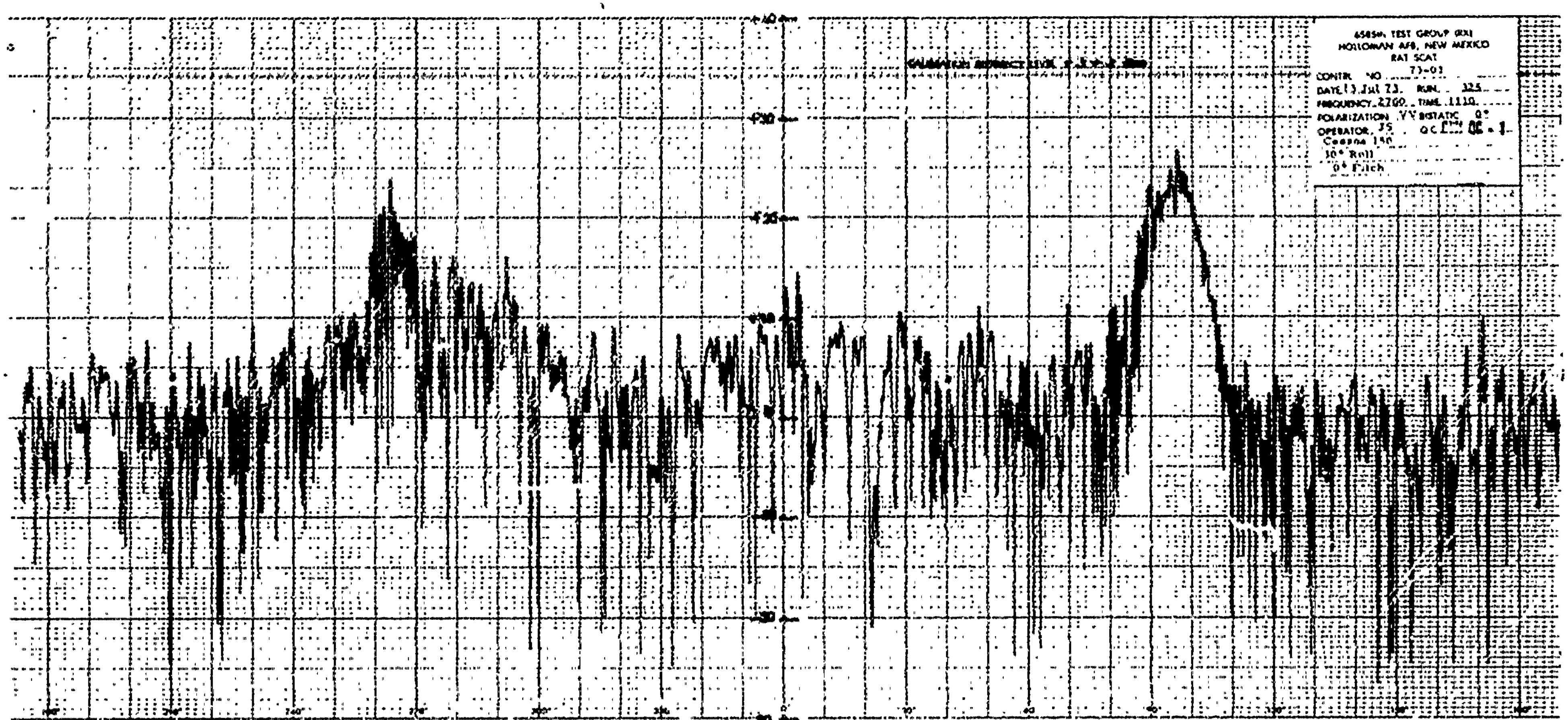

6585th TEST GROUP
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 2 Jul 73 RUN 227
FREQUENCY 2700 TIME 0835
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
0° Pitch
+30
+10
-10
-20
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°


6585th TEST GROUP (PX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 11 Jul 73 RUN 276
FREQUENCY 2700 TIME 1005
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
15° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

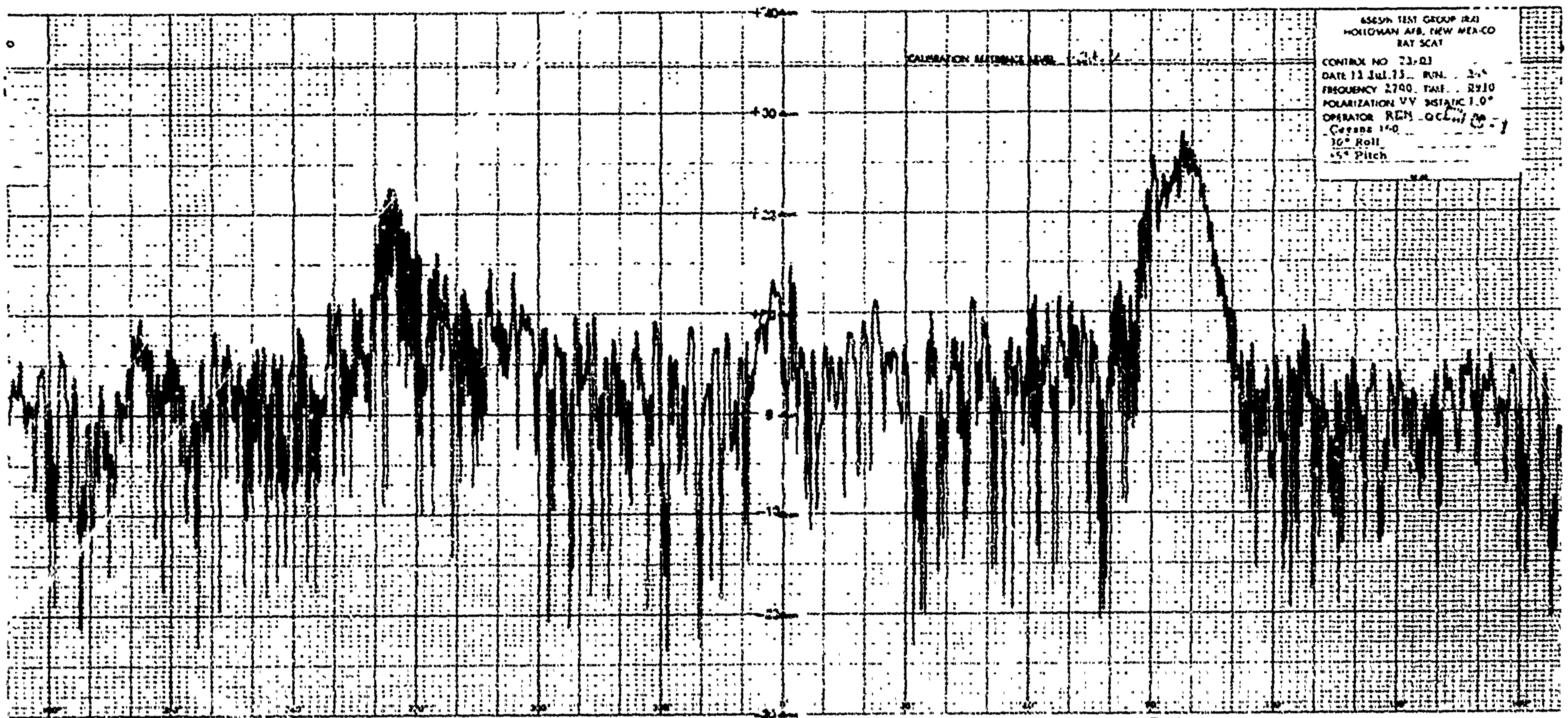

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 11 Jul 75 RUN 288
FREQUENCY 2700 TIME 1730
POLARIZATION VV BISTATIC 0°
OPERATOR HR
Canberra 150
20° Roll
+10° Pitch
270°
300°
30°
90°

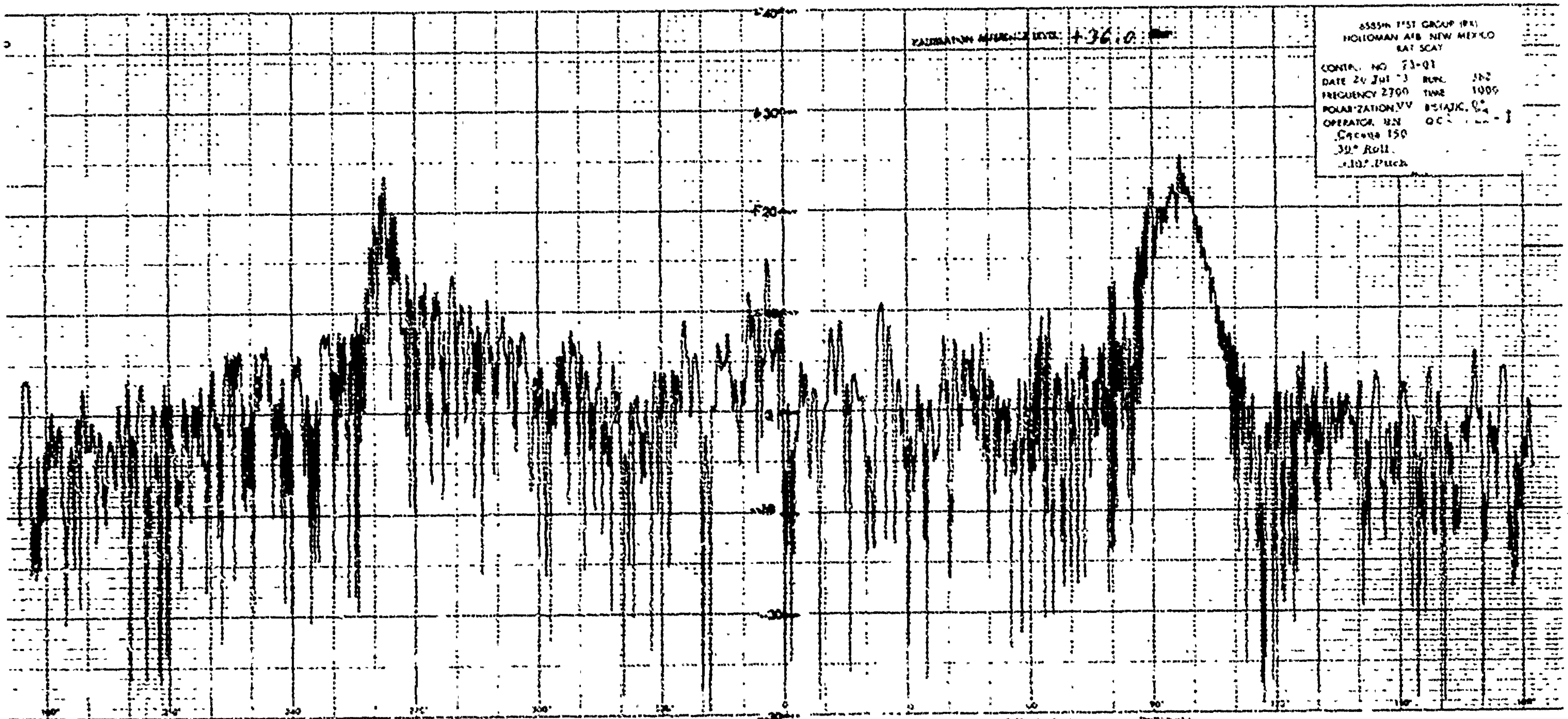

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 397
FREQUENCY 2700 TIME 1920
POLARIZATION VV BISTATIC 0°
OPERATOR SIM
Cessna 150
30° Roll
-10° Pitch

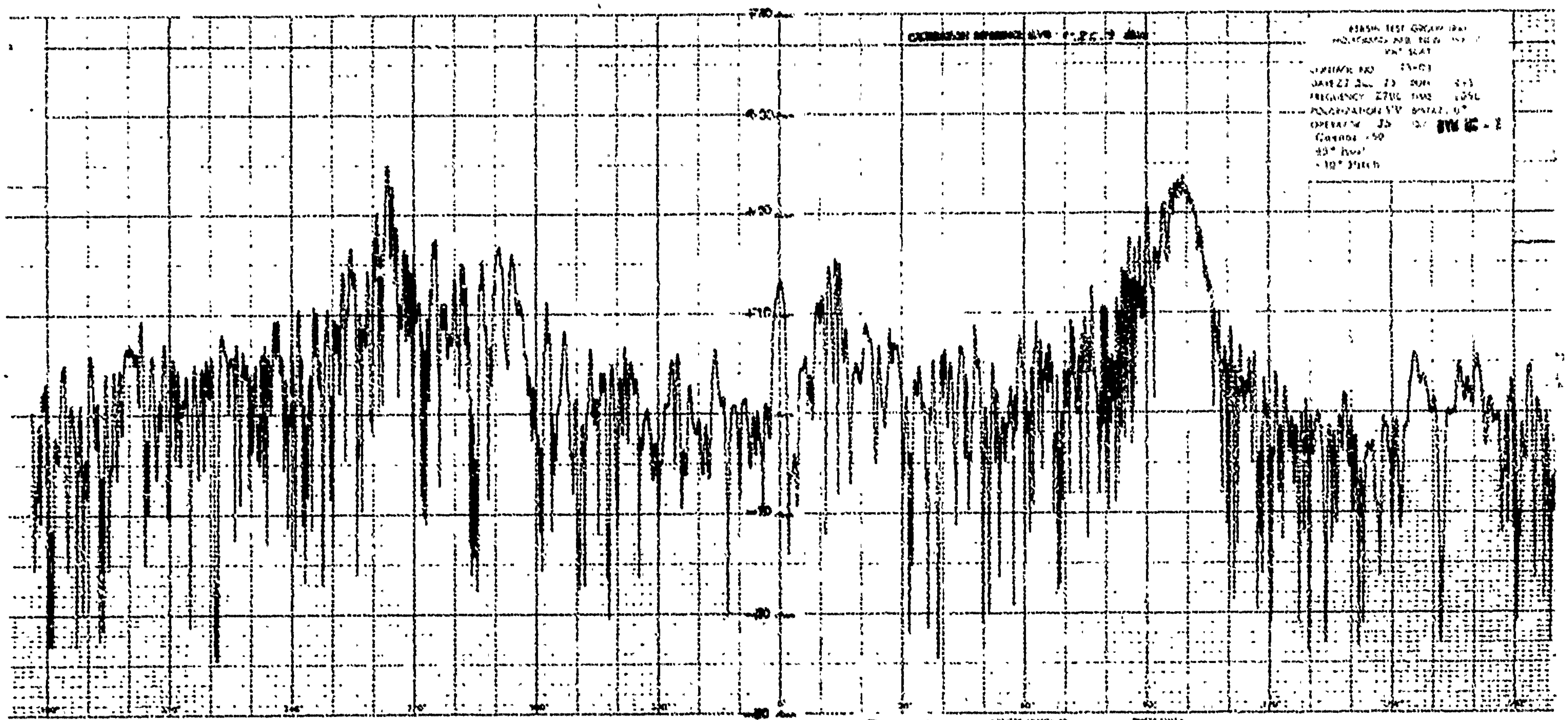

6585th TEST GROUP (RA)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 384
FREQUENCY 2700 TIME 1300
POLARIZATION VV BISTATIC 0°
OPERATOR RN
Cessna 150
10° Roll
-5° Pitch

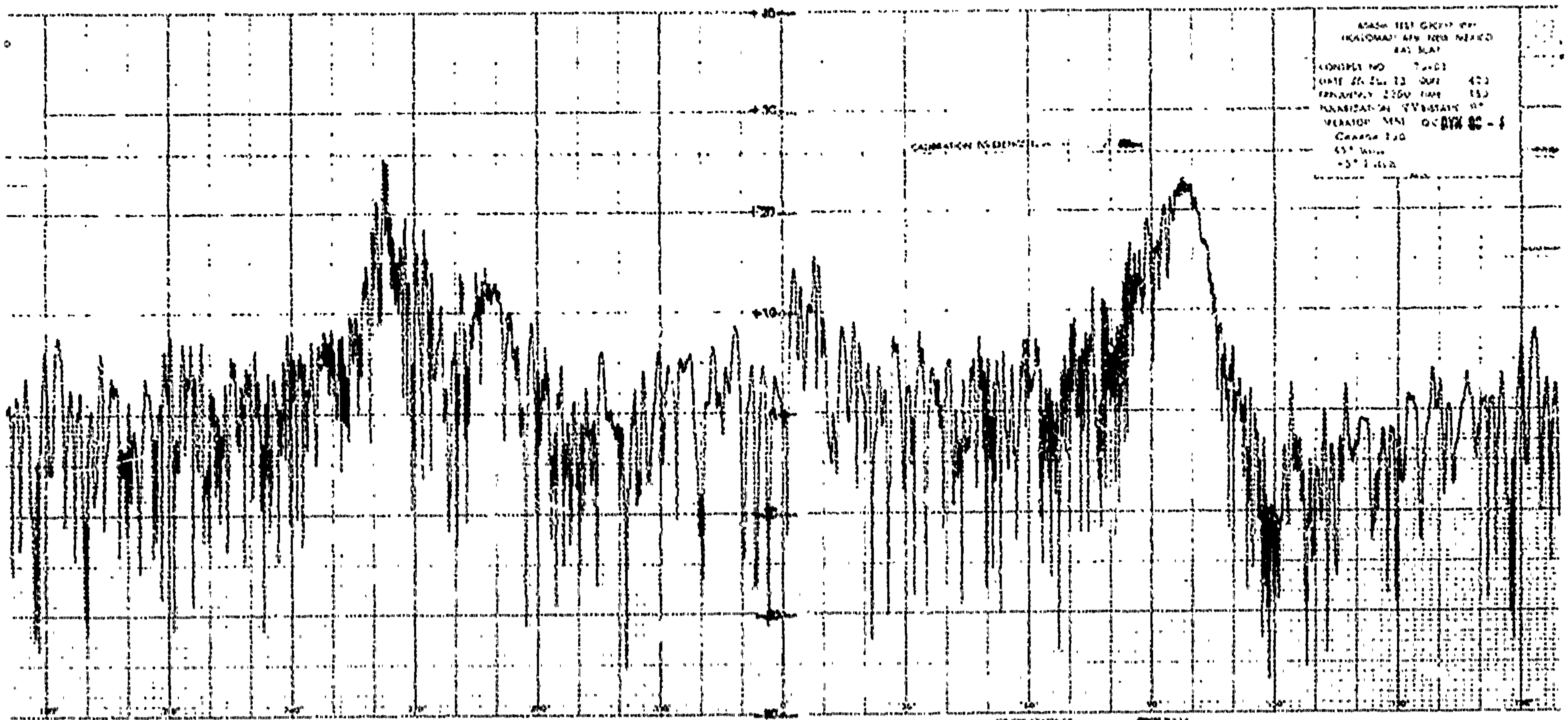


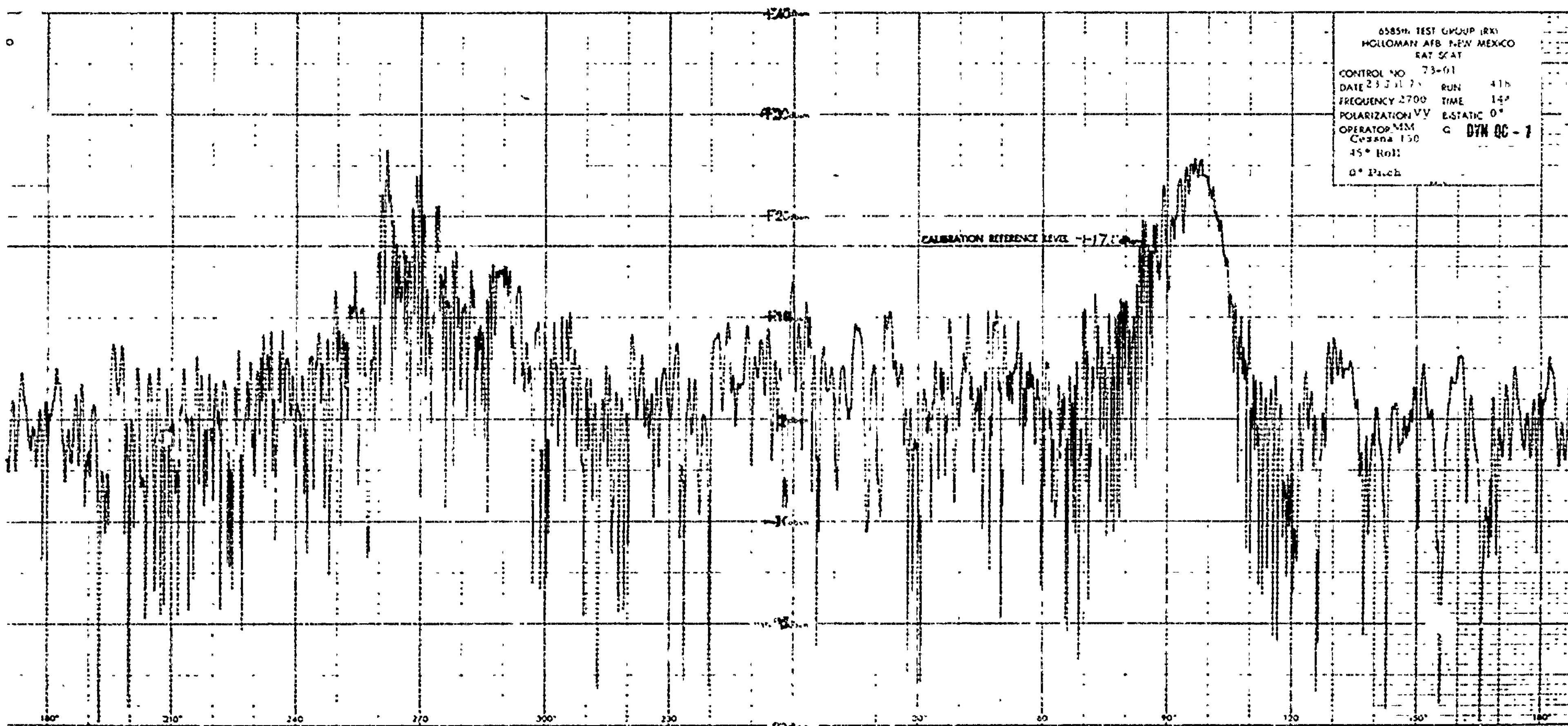
6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTR. NO 73-03
DATE 13 Jul 73. RUN. 325
FREQUENCY 2700 TIME 1110
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
30° Roll
0° Pitch
+40
+30
+20
+10
0
-10
-20
-30
0°

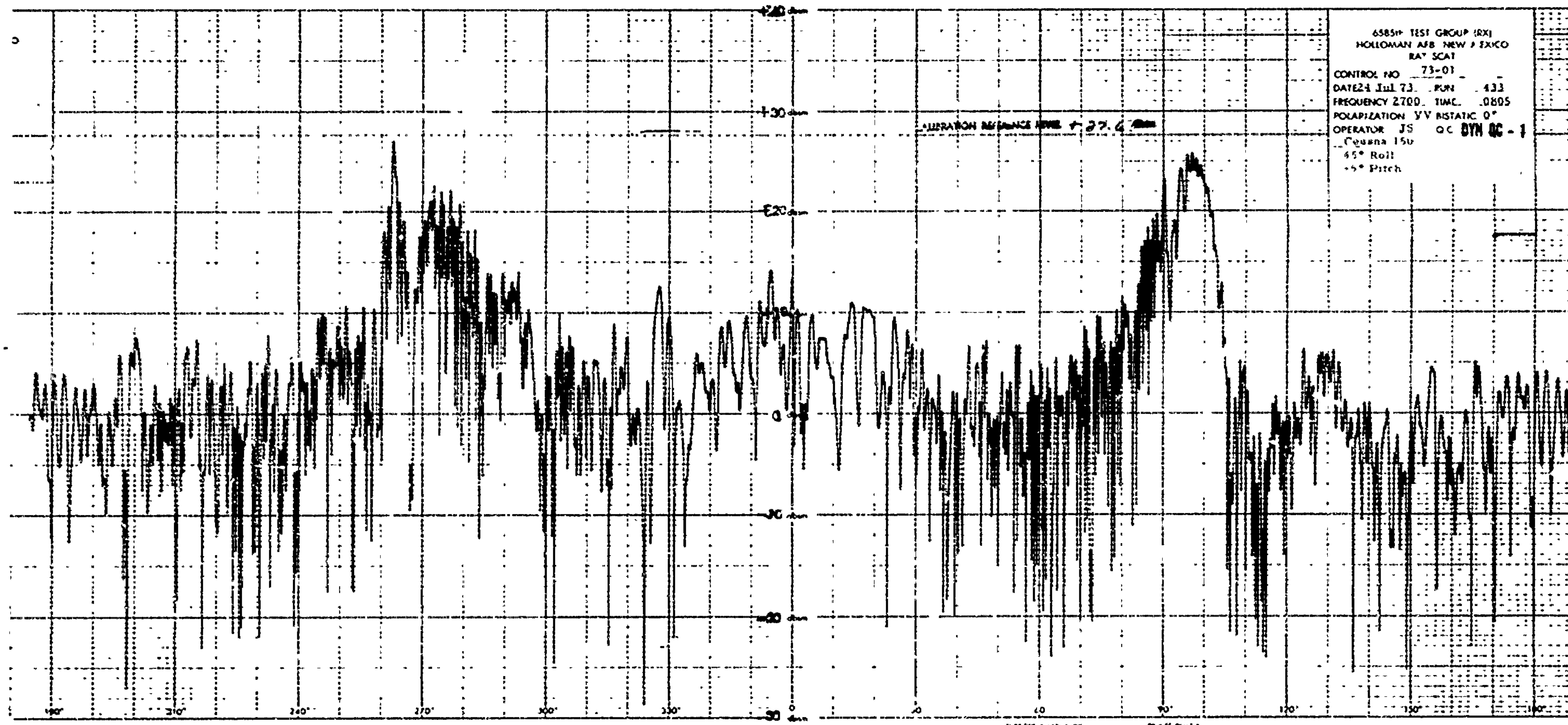

6585th TEST GROUP (RA)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO
DATE
FREQUENCY 2700
POLARIZATION VV BISTATIC 1.0°
OPERATOR
30° Roll
+5° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30

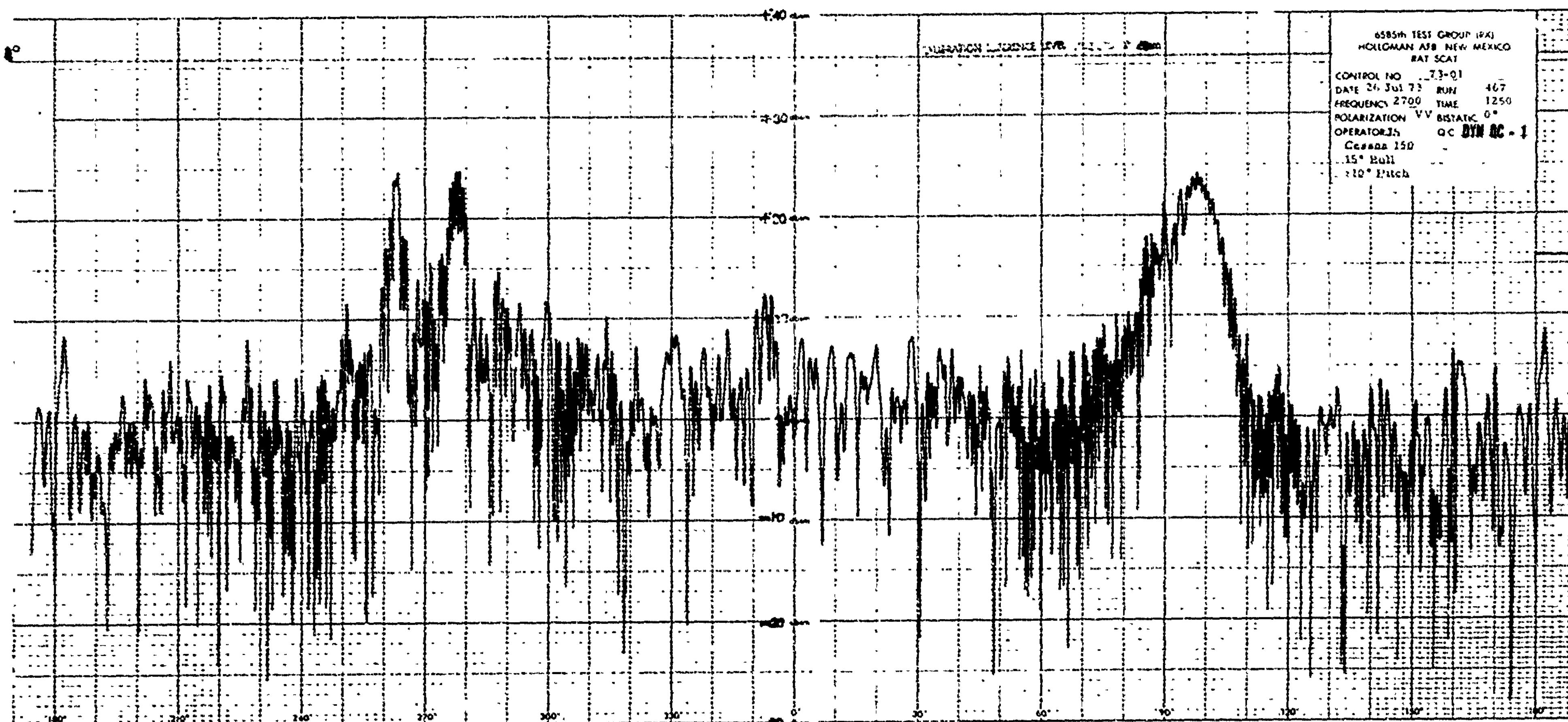

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTR. NO 73-01
DATE 26 Jul 73 RUN 362
FREQUENCY 2700 TIME 1009
POLARIZATION VV BISTATIC 0°
OPERATOR
Cessna 150
30° Roll
+10° Pitch
CALIBRATION REFERENCE LEVEL +36.0

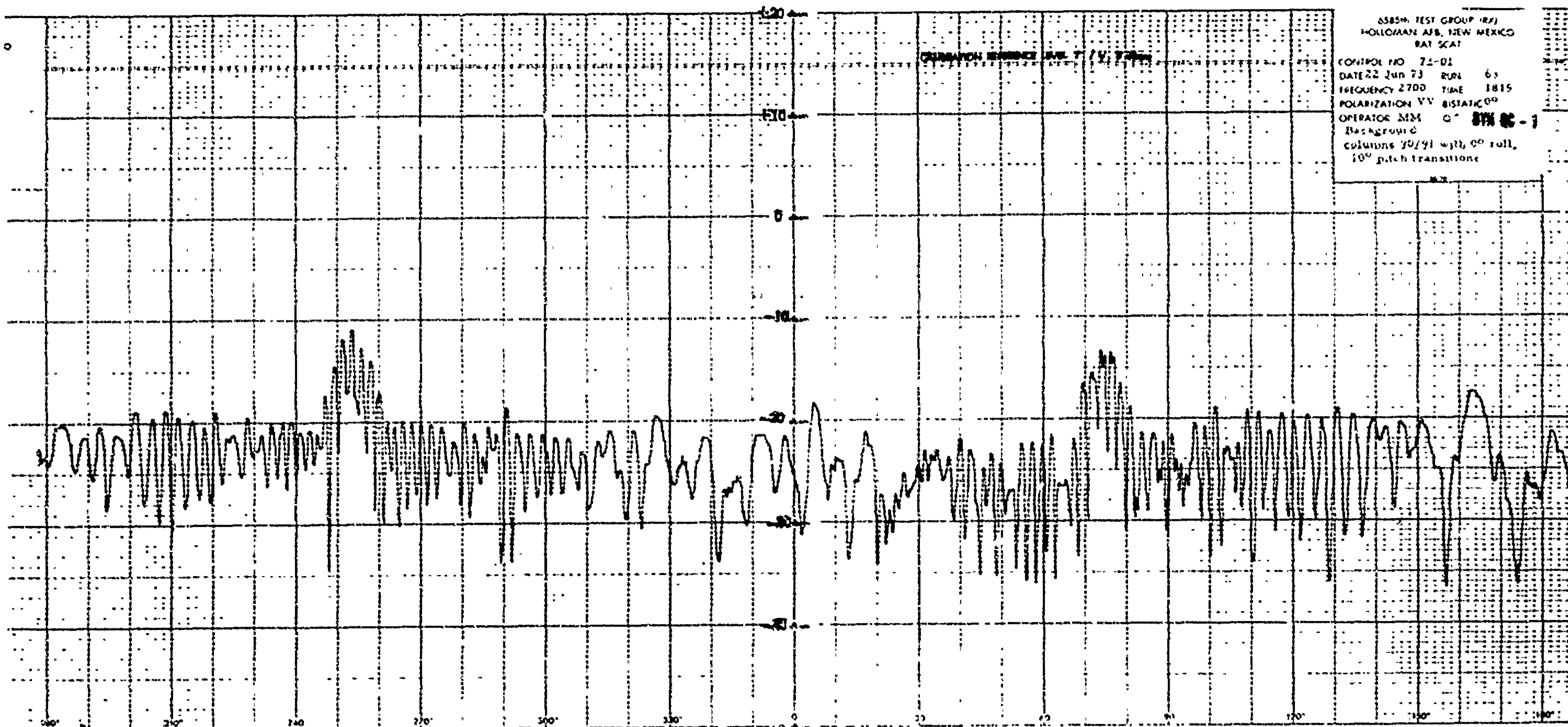


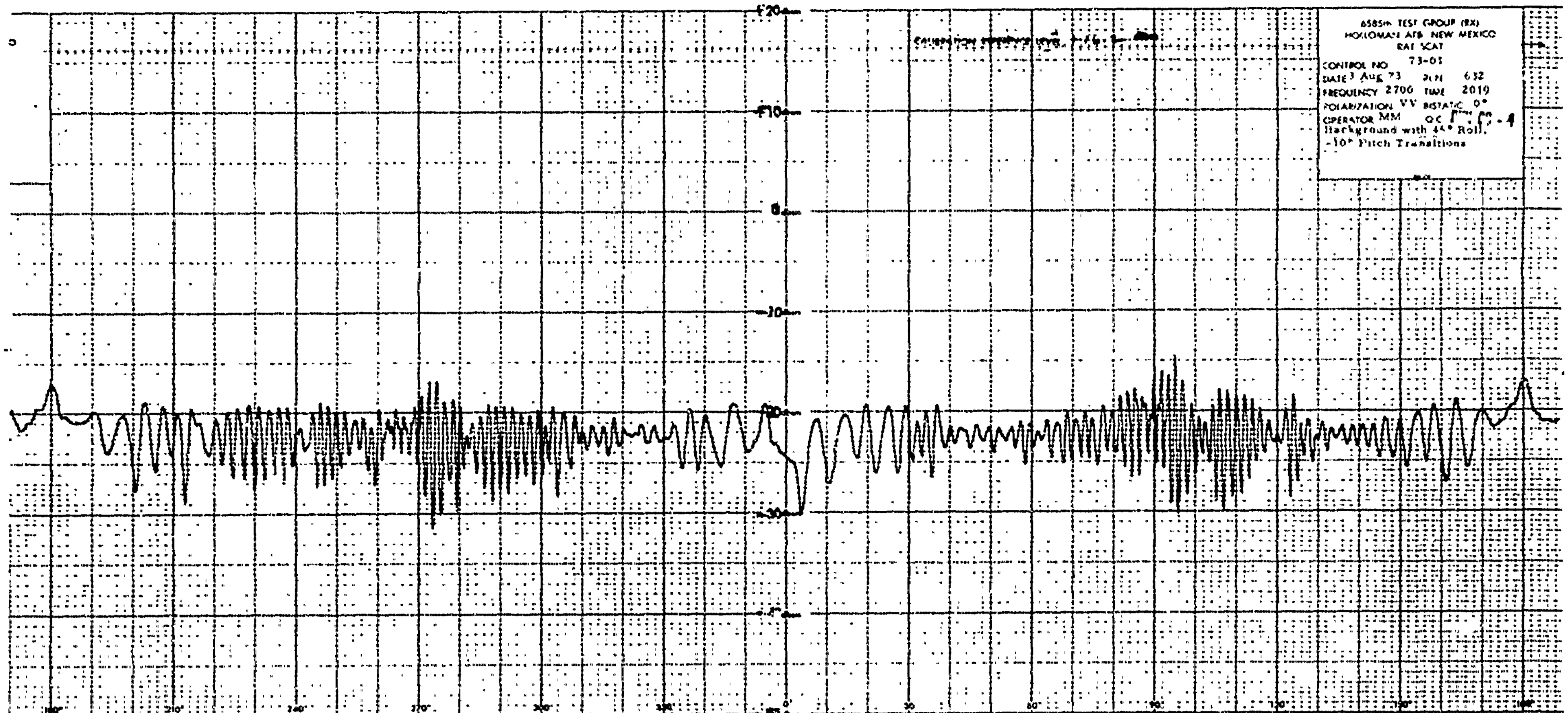


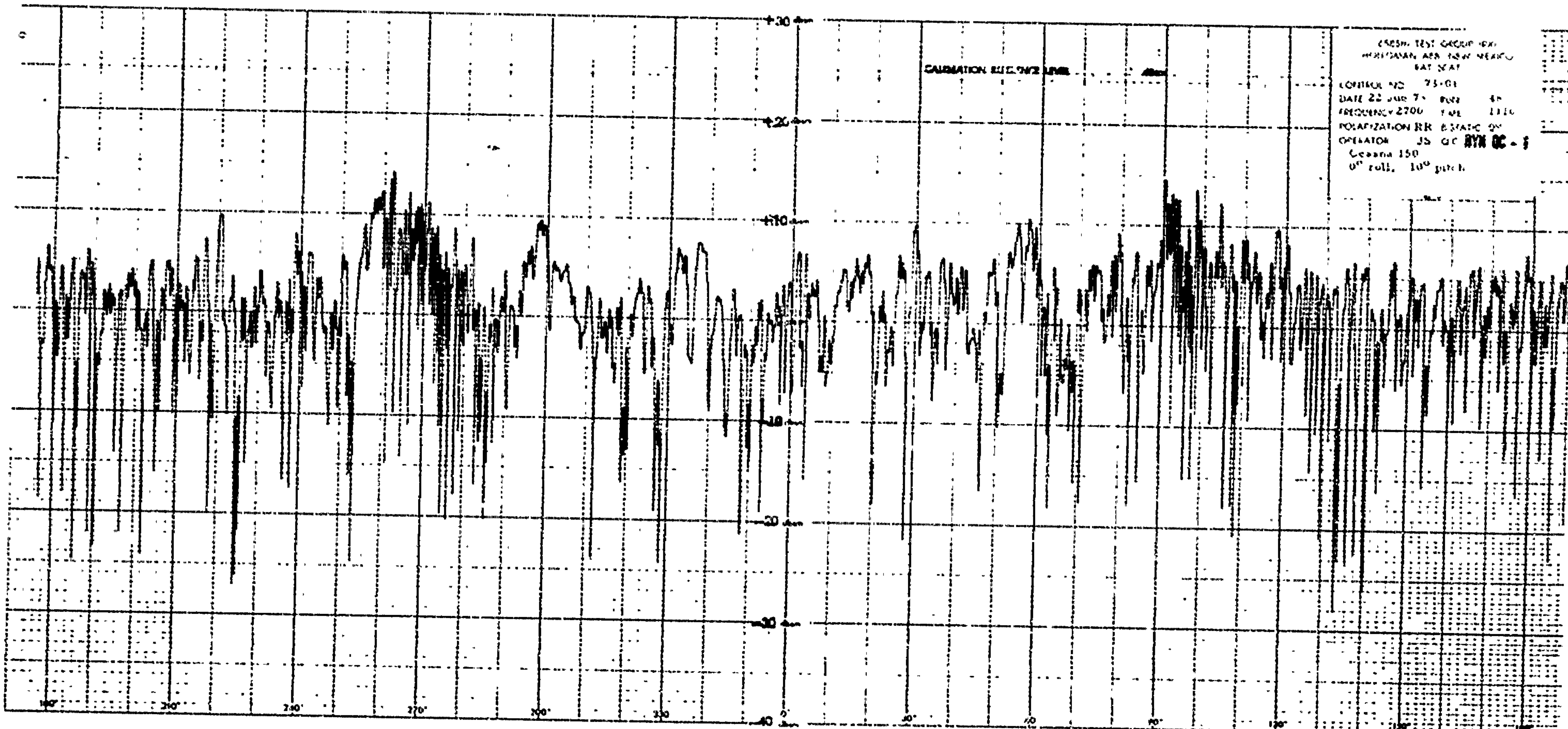

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
RUN 416
FREQUENCY 2700
TIME 14°
POLARIZATION VV
E-STATIC 0°
OPERATOR MM
DYN QC - 7
Cessna 150
45° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
180°
210°
240
270
300°
330
30°
60
90°
120
150°
180°

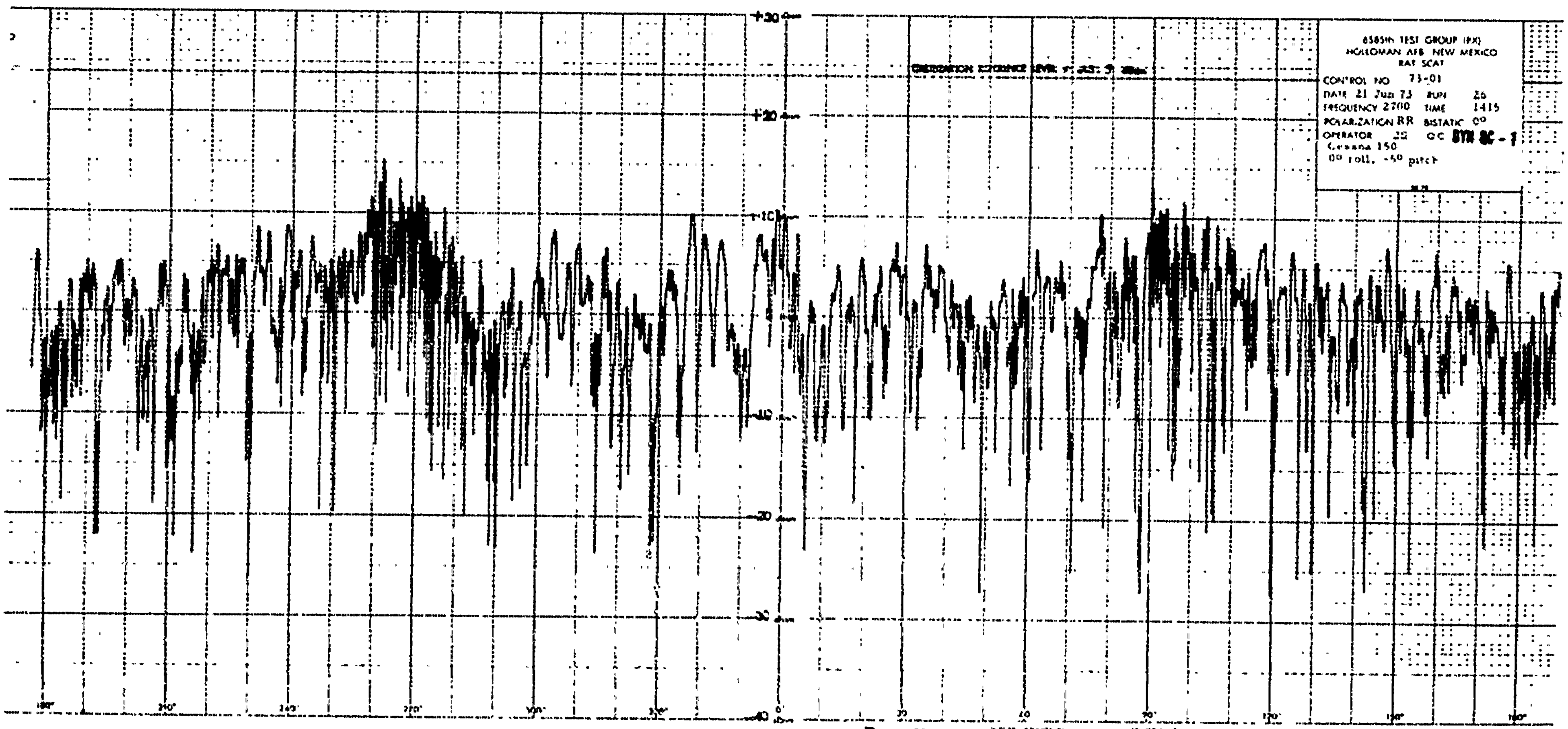

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 24 Jul 73 RUN 433
FREQUENCY 2700 TIME .0805
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC DYN QC - 1
Cessna 150
45° Roll
+5° Pitch
CALIBRATION REFERENCE LEVEL + 27.6
+40 dbsm
+30 dbsm
+20 dbsm
+10 dbsm
0
-10 dbsm
-20 dbsm
-30 dbsm
180°
210°
240°
270°
300°
330°
0
30
60
90°
120°
150°
180°

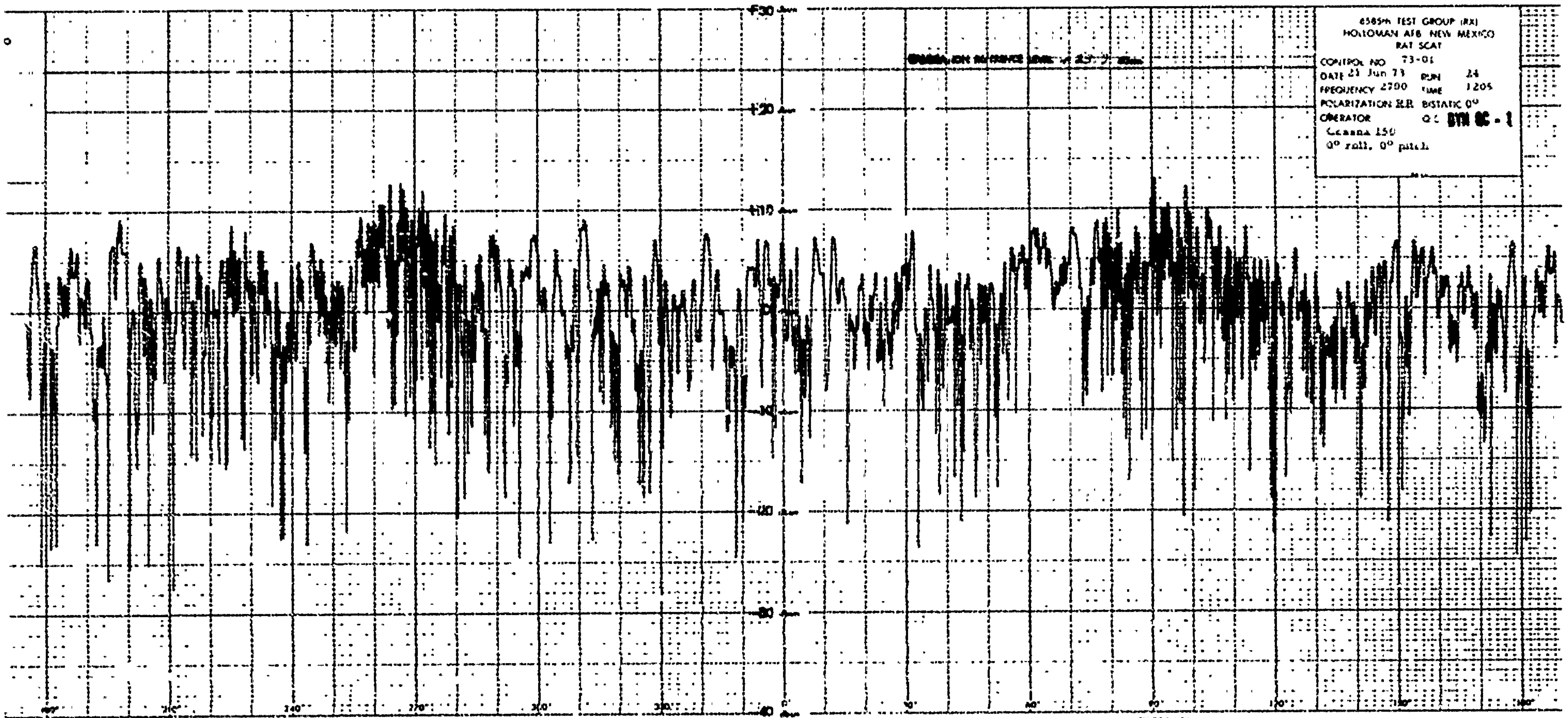

6585th TEST GROUP (PX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 26 Jul 73 RUN 467
FREQUENCY 2700 TIME 1250
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC DYN AC - 1
Cessna 150
15° Roll
±10° Pitch
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

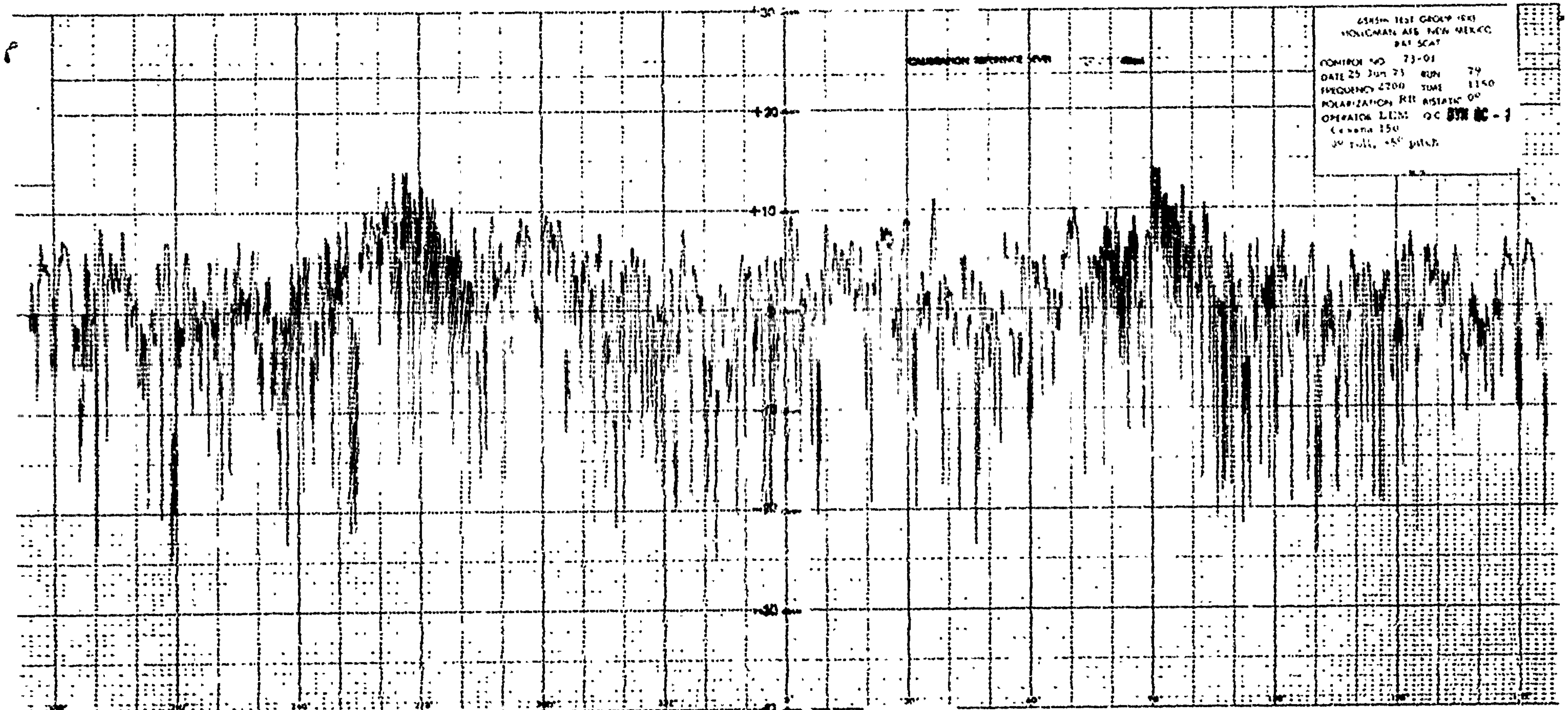

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 74-01
DATE 22 Jun 73 RUN 63
FREQUENCY 2700 TIME 1815
POLARIZATION VV BISTATIC 0°
OPERATOR MM
Background
columns 90/91 with 0° roll,
10° pitch transitions
+20
+10
0
-10
-20
-30
-40
-60
270°
300°
330°
0
30
60
90
120°
150°
180°

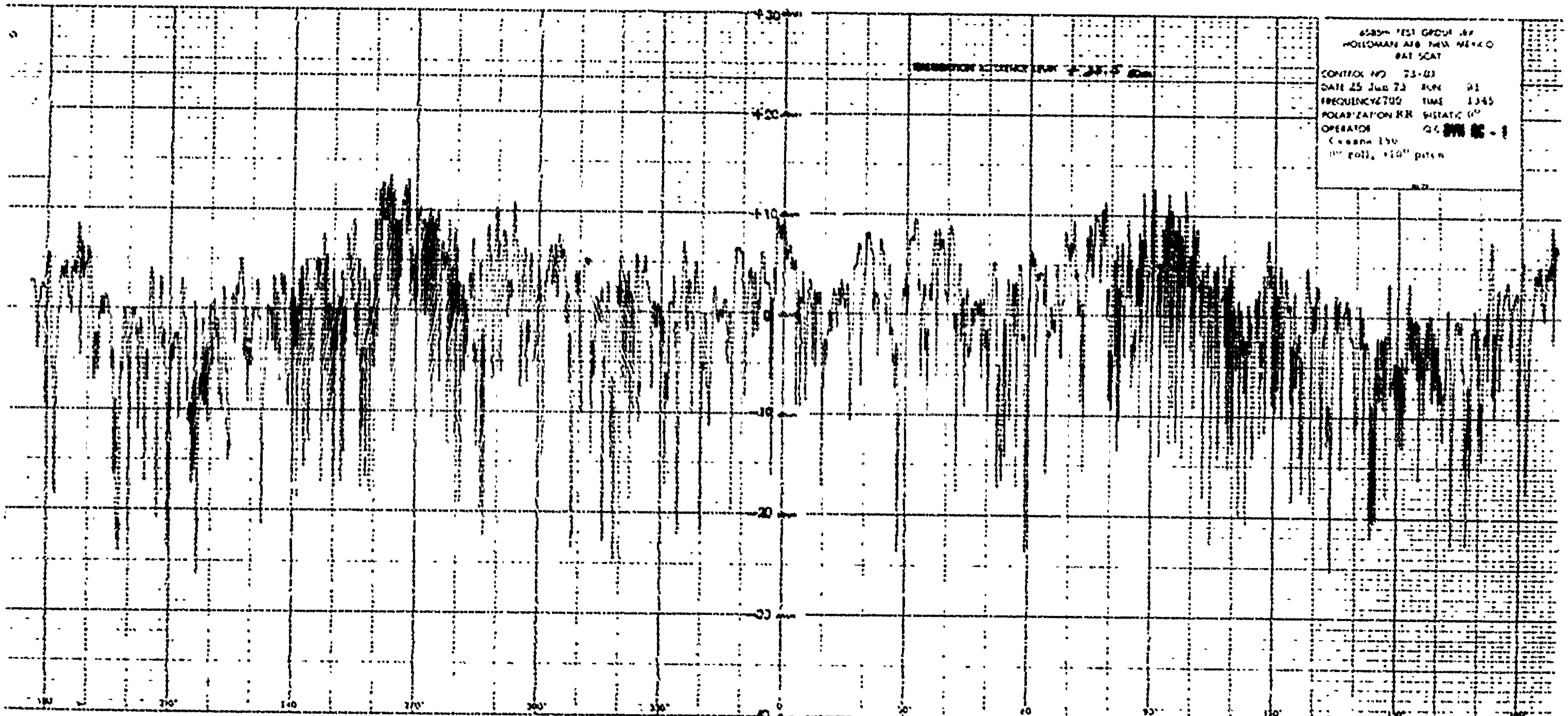

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 3 Aug 73 RUN 632
FREQUENCY 2700 TIME 2019
POLARIZATION VV BISTATIC 0°
OPERATOR MM QC
Background with 45° Roll, -10° Pitch Transitions
+20
+10
0
-10
-20
-30
-50
180°
210°
240°
270°
300°
330°
0°
30
60°
90°
120°
150°
180°


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 22 Jun 73
FREQUENCY 2700
POLARIZATION RR
OPERATOR JS
Cessna 150
0° roll, 10° pitch
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

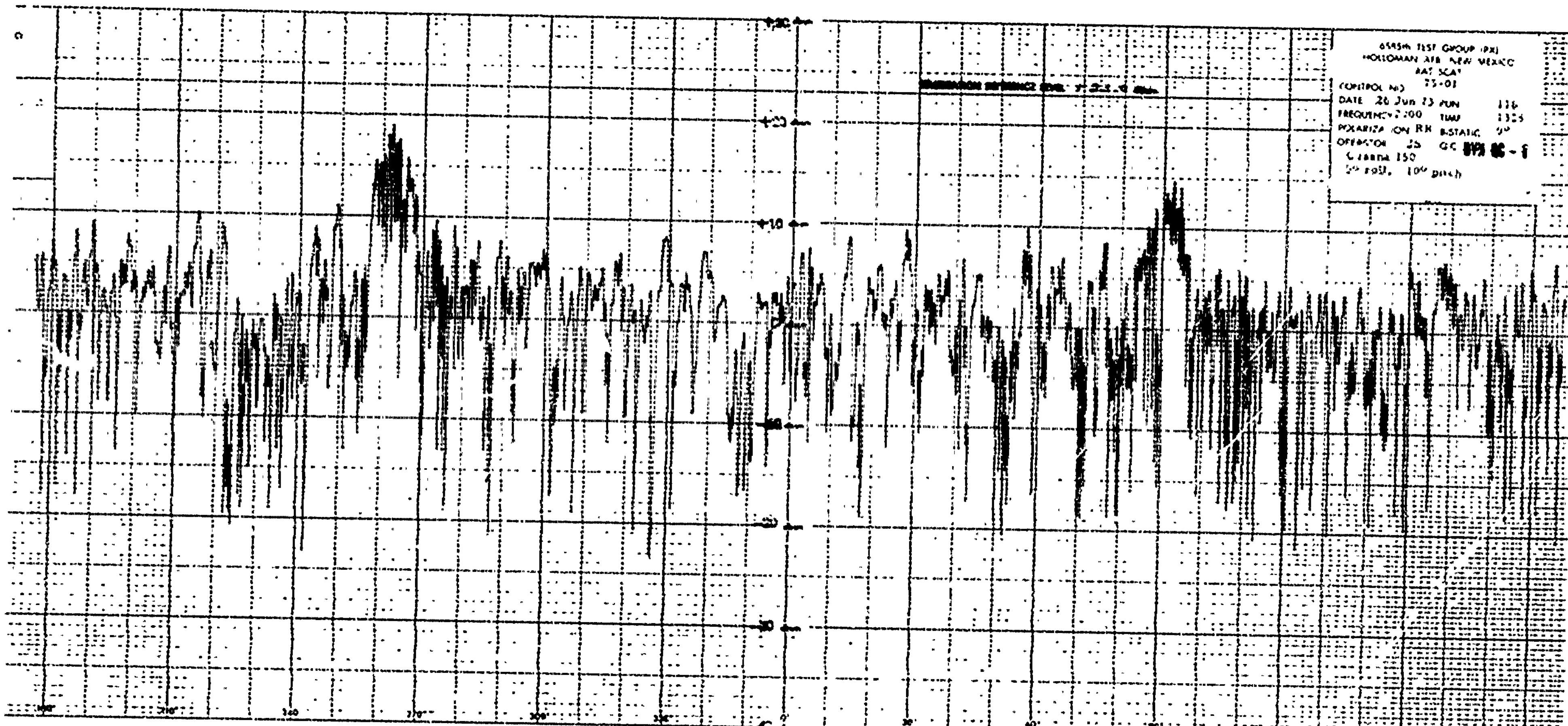

6585th TEST GROUP (PX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 21 Jun 73 RUN 26
FREQUENCY 2700 TIME 1415
POLARIZATION RR BISTATIC 0°
OPERATOR 2G QC SYN RC - 1
Cessna 150
0° roll, -5° pitch
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
30
60
90°
120°
150°
180°

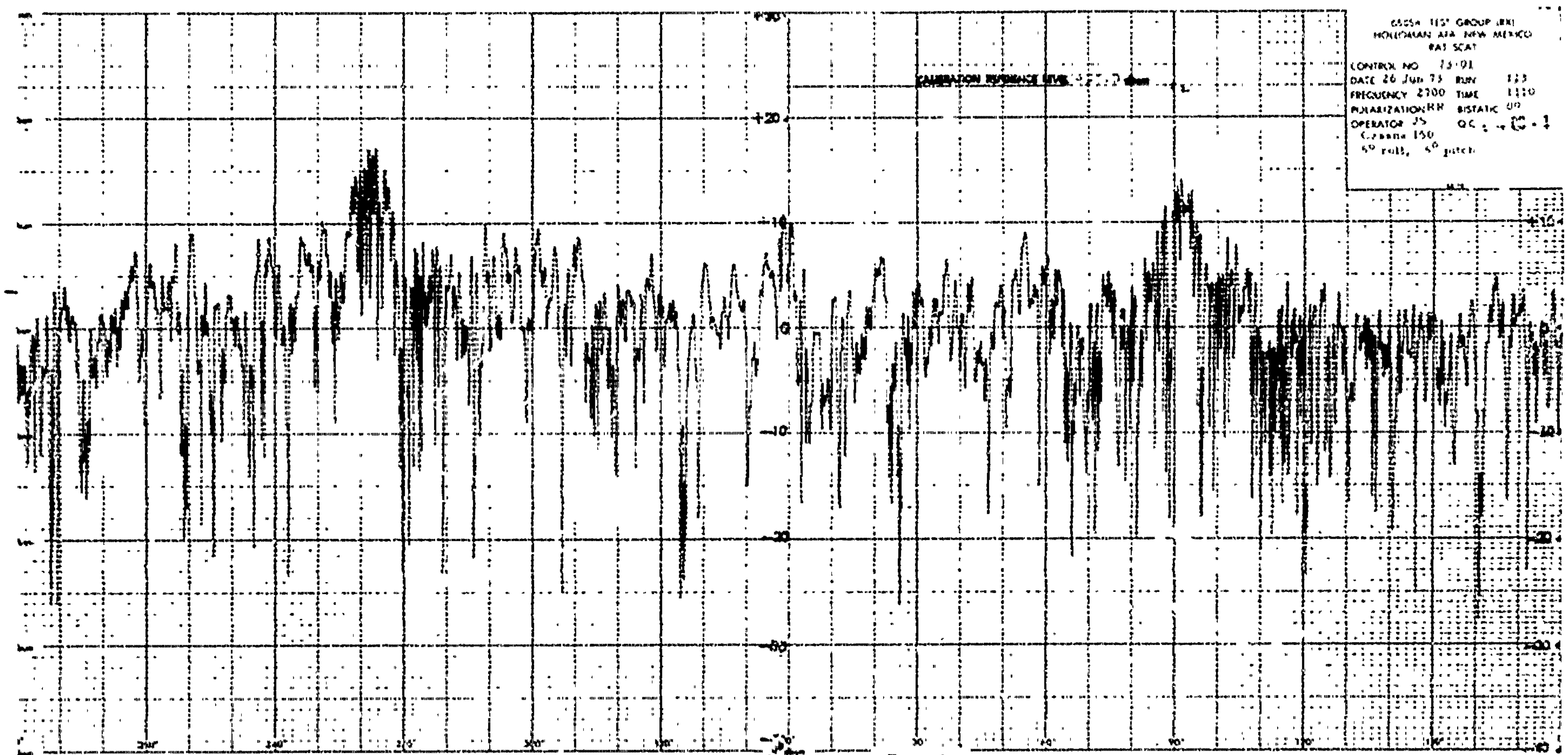

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 21 Jun 73 RUN 24
FREQUENCY 2700 TIME 1205
POLARIZATION RR BISTATIC 0°
OPERATOR
Cessna 150
0° roll, 0° pitch
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

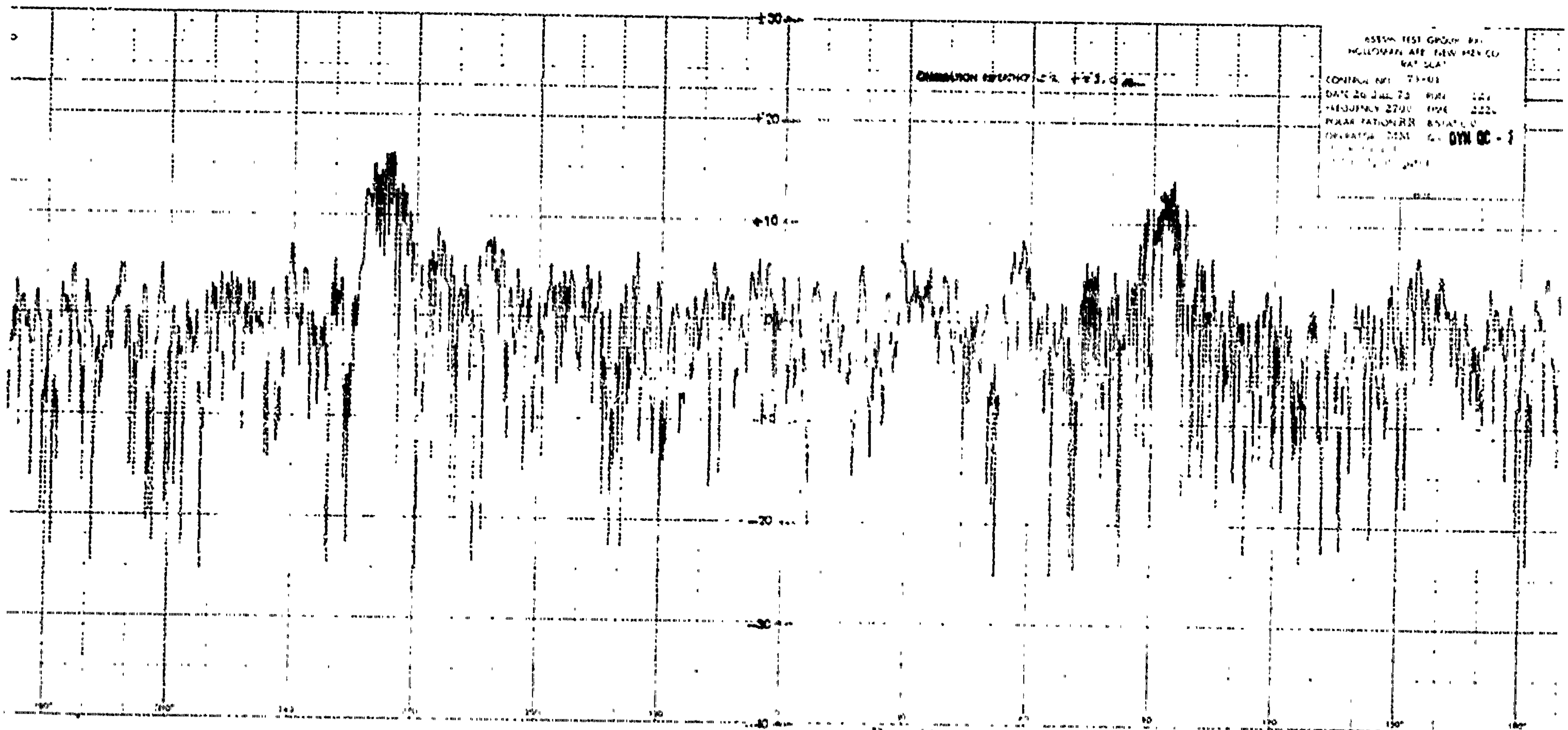

6585th Test Group (SX)
Holloman AFB New Mexico
RAT SCAT
Control No 73-01
Date 25 Jun 73 Run 79
Frequency 2700 Time 1150
Polarization RH Bistatic 0°
Operator LCM QC
Cessna 150
3° roll, +5° pitch
Calibration Reference Level
+30
+20
+10
-10
-20
-30
-40
Page 59

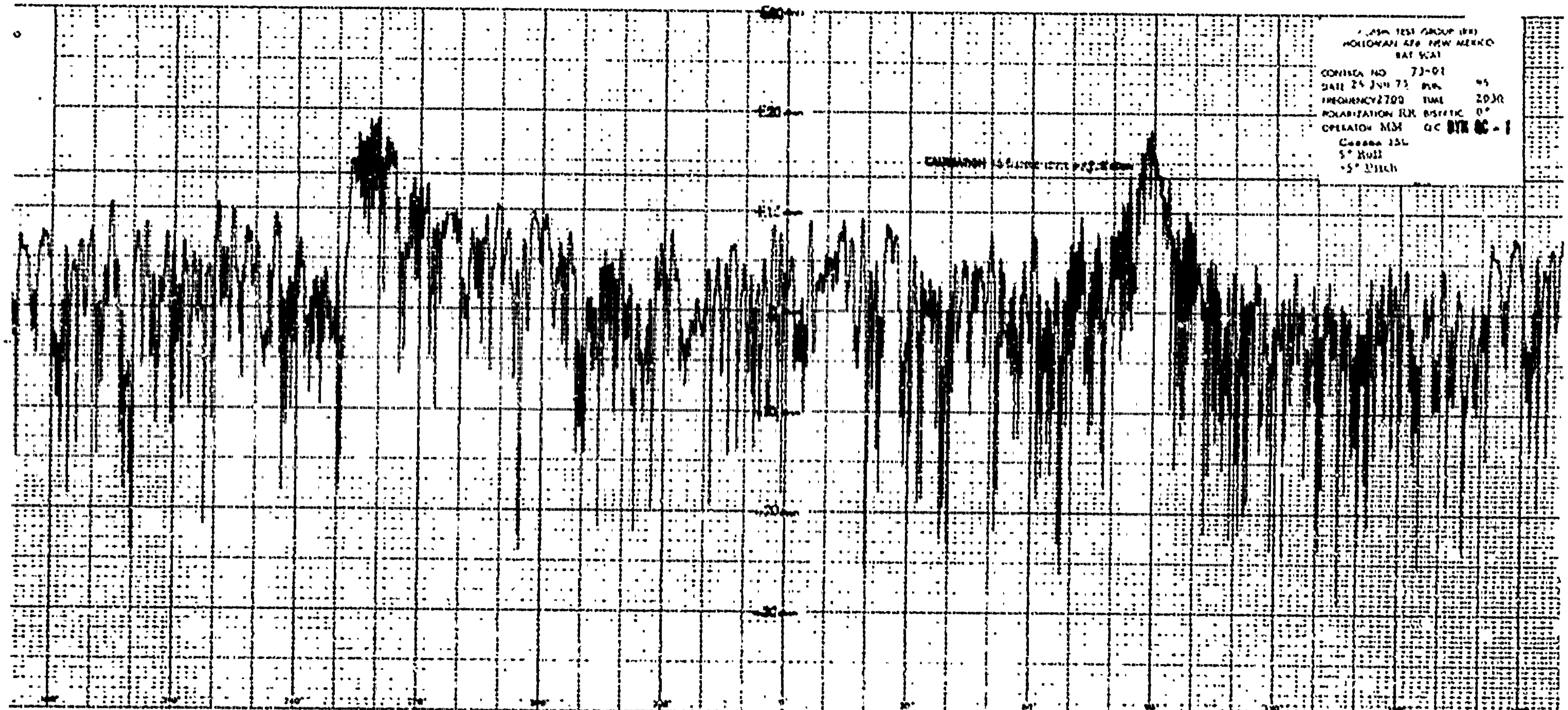


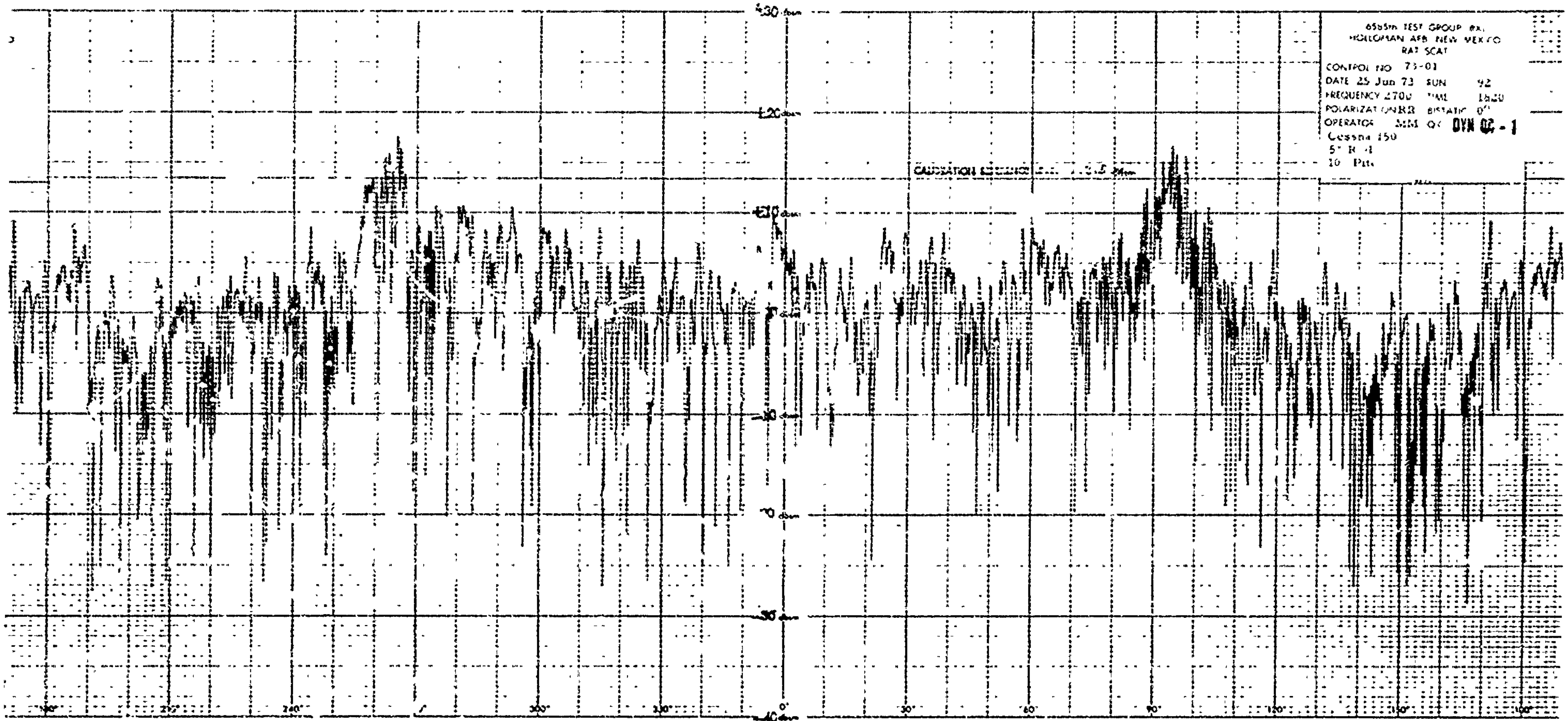
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-03
DATE 25 Jun 73 RUN 91
FREQUENCY 2700 TIME 1345
POLARIZATION RR BISTATIC 0°
OPERATOR QC [redacted]
Cessna 150
roll, +10° pitch
+30
+20
+10
0
-10
-20
-30
-40
180
210°
240
270°
300°
330°
0
30°
60
90°
120°
150°
180°

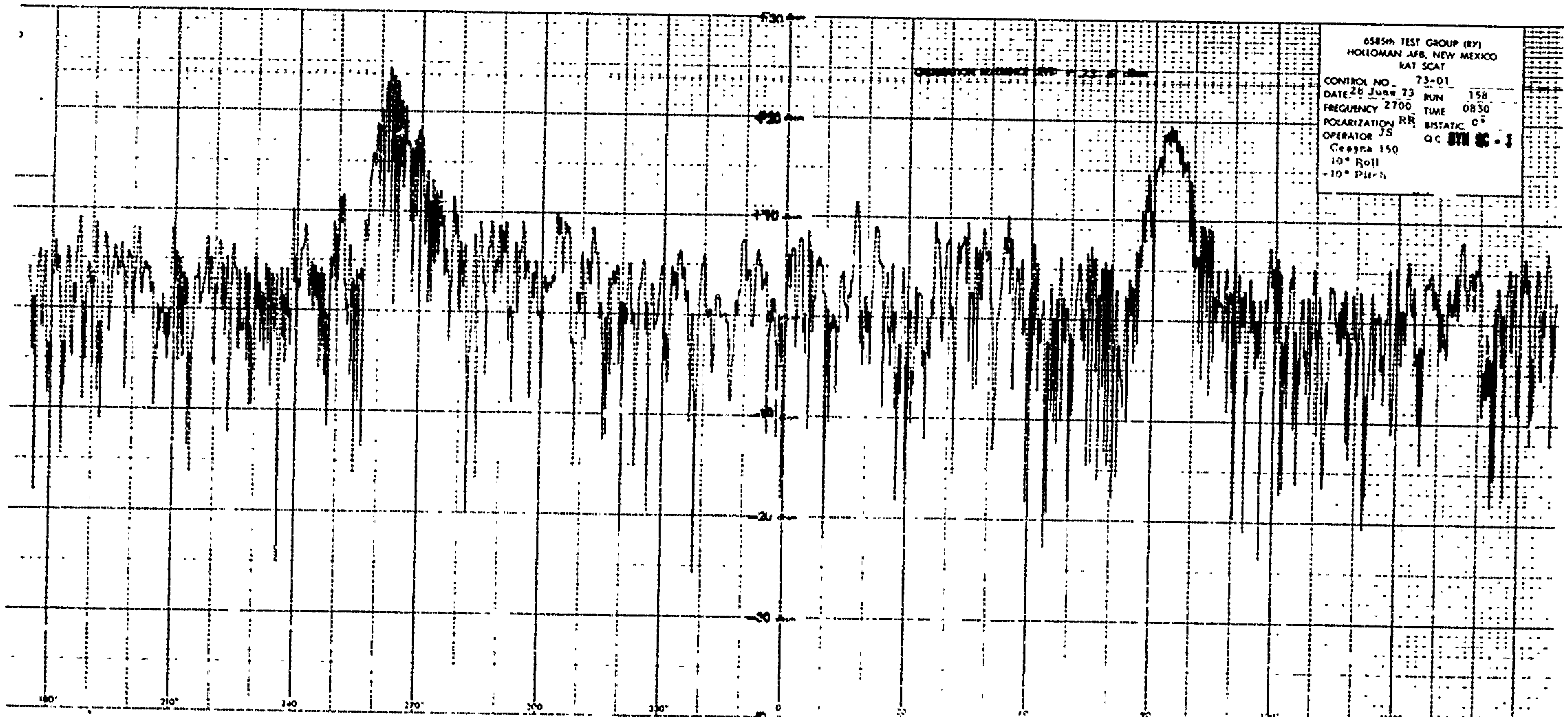

6585th TEST GROUP (PX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO
DATE 20 Jun 73
FREQUENCY
POLARIZATION RH
BISTATIC
OPERATOR
GC

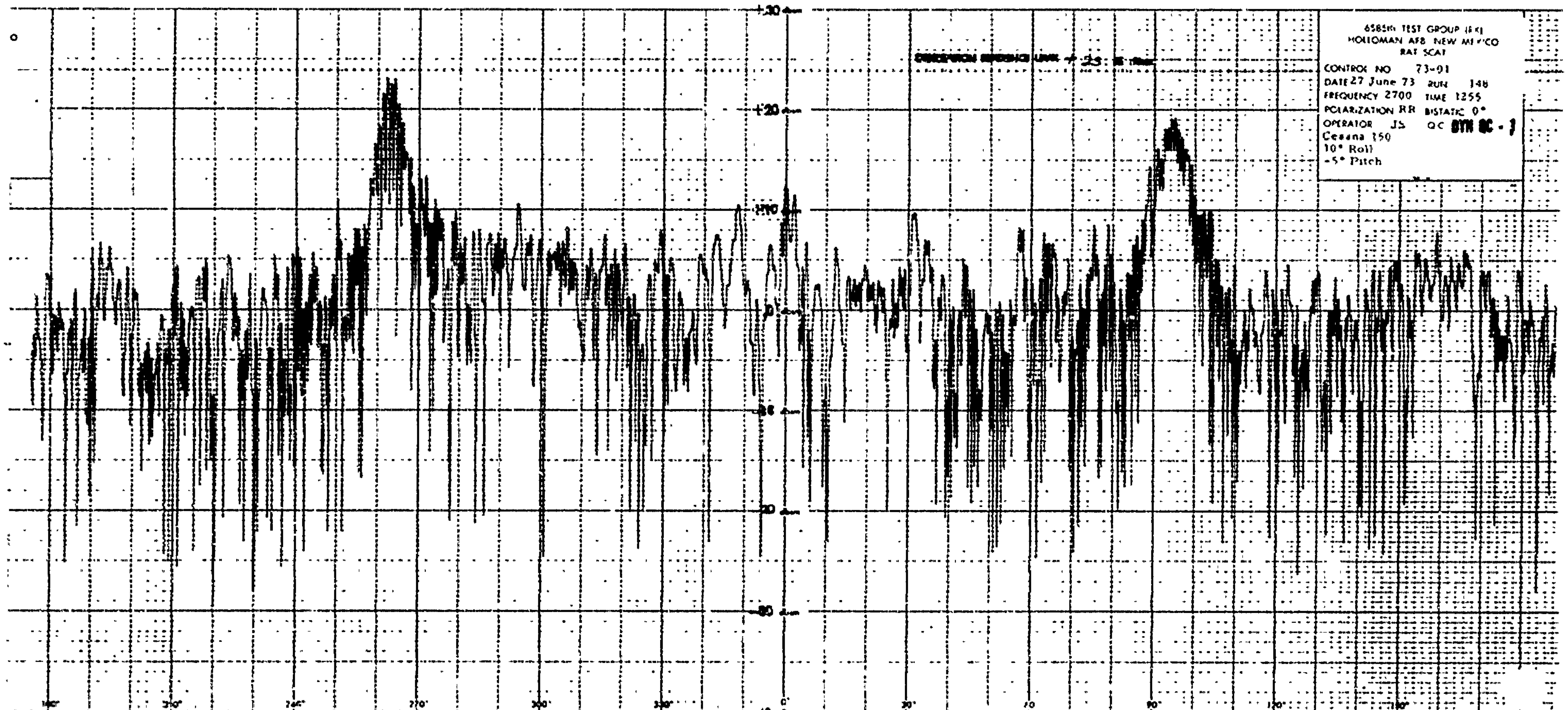

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 26 Jun 73 RUN 133
FREQUENCY 2700 TIME 1110
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
5° roll, 5° pitch
CALIBRATION REFERENCE LEVEL
+20
+10
0
-10
-20
-30
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

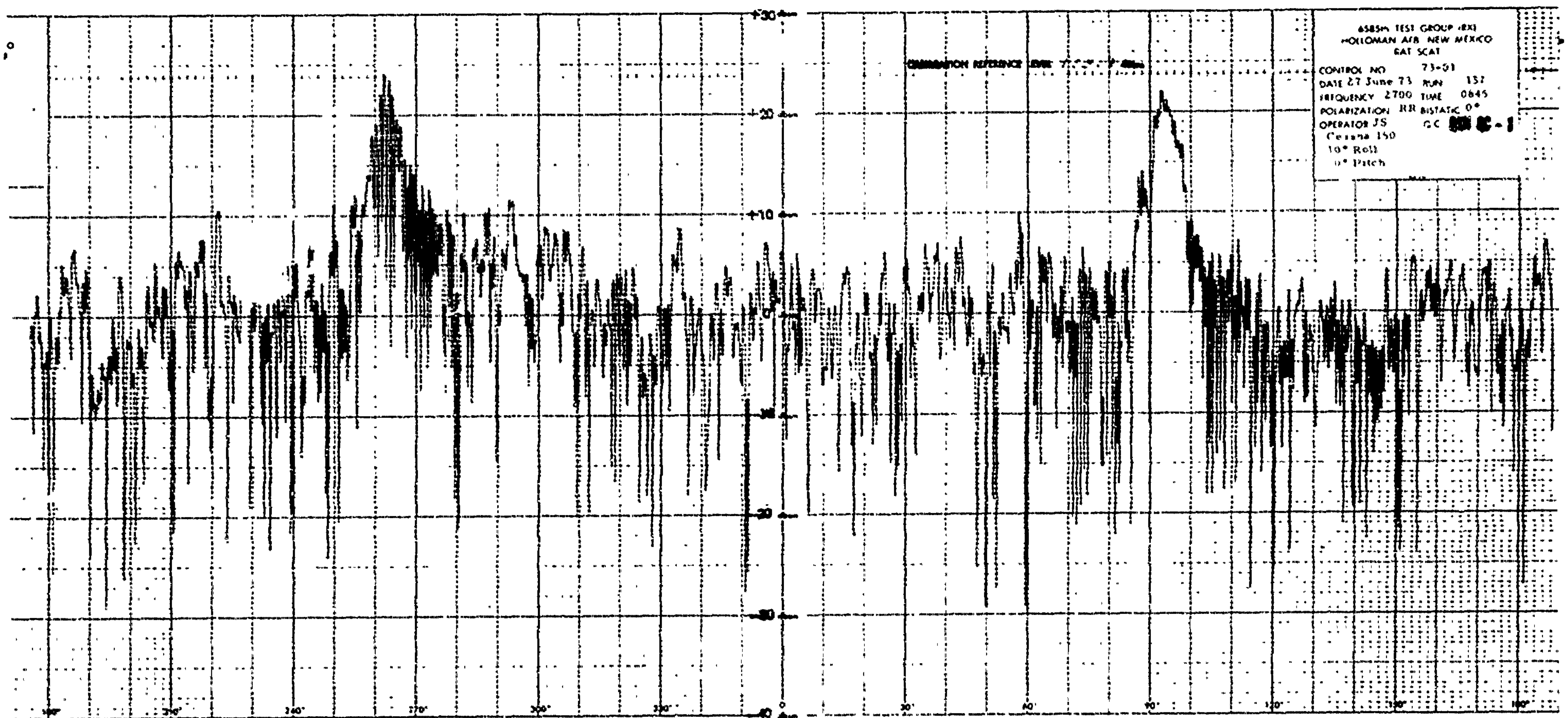


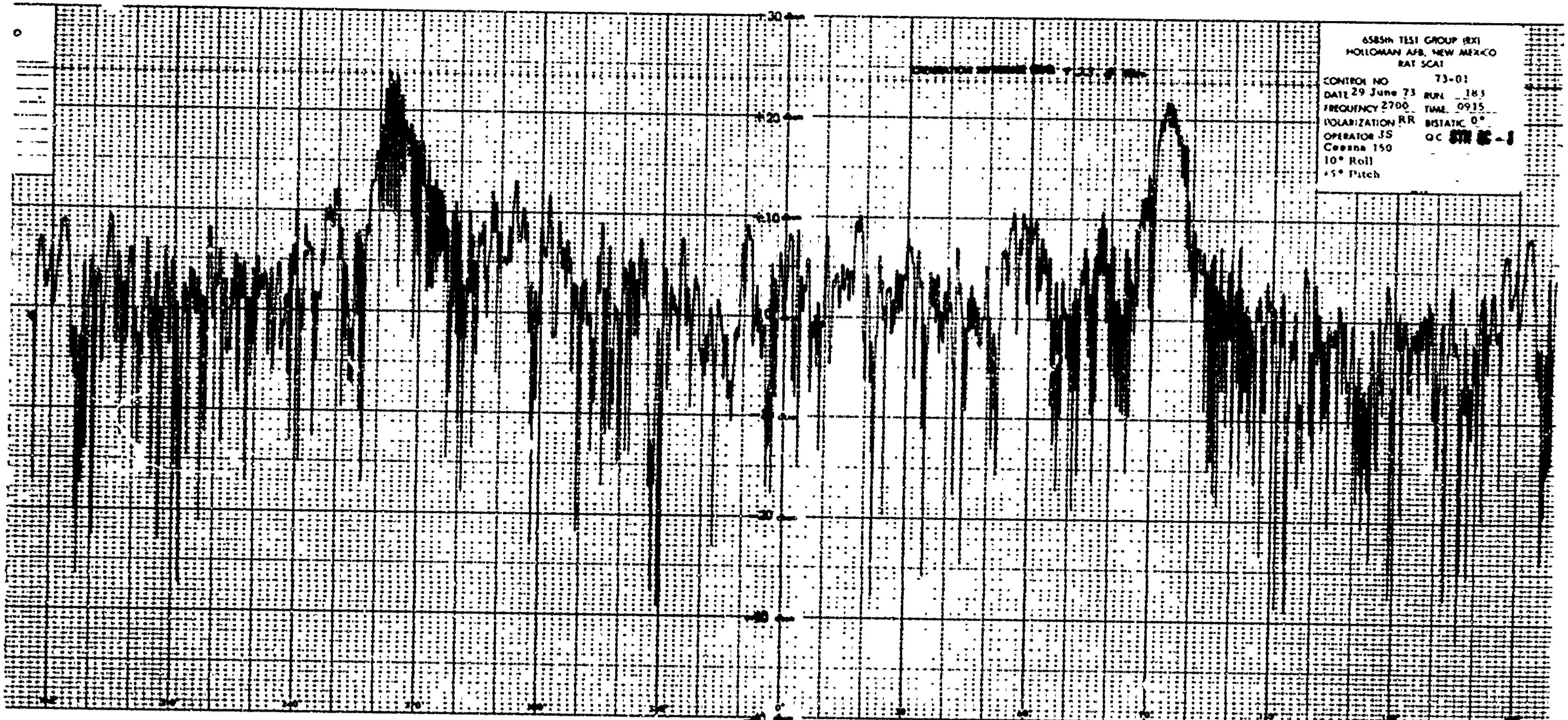

73-01
FREQUENCY 2700
TIME 2030
POLARIZATION RR
0°
5° Roll
+5° Pitch

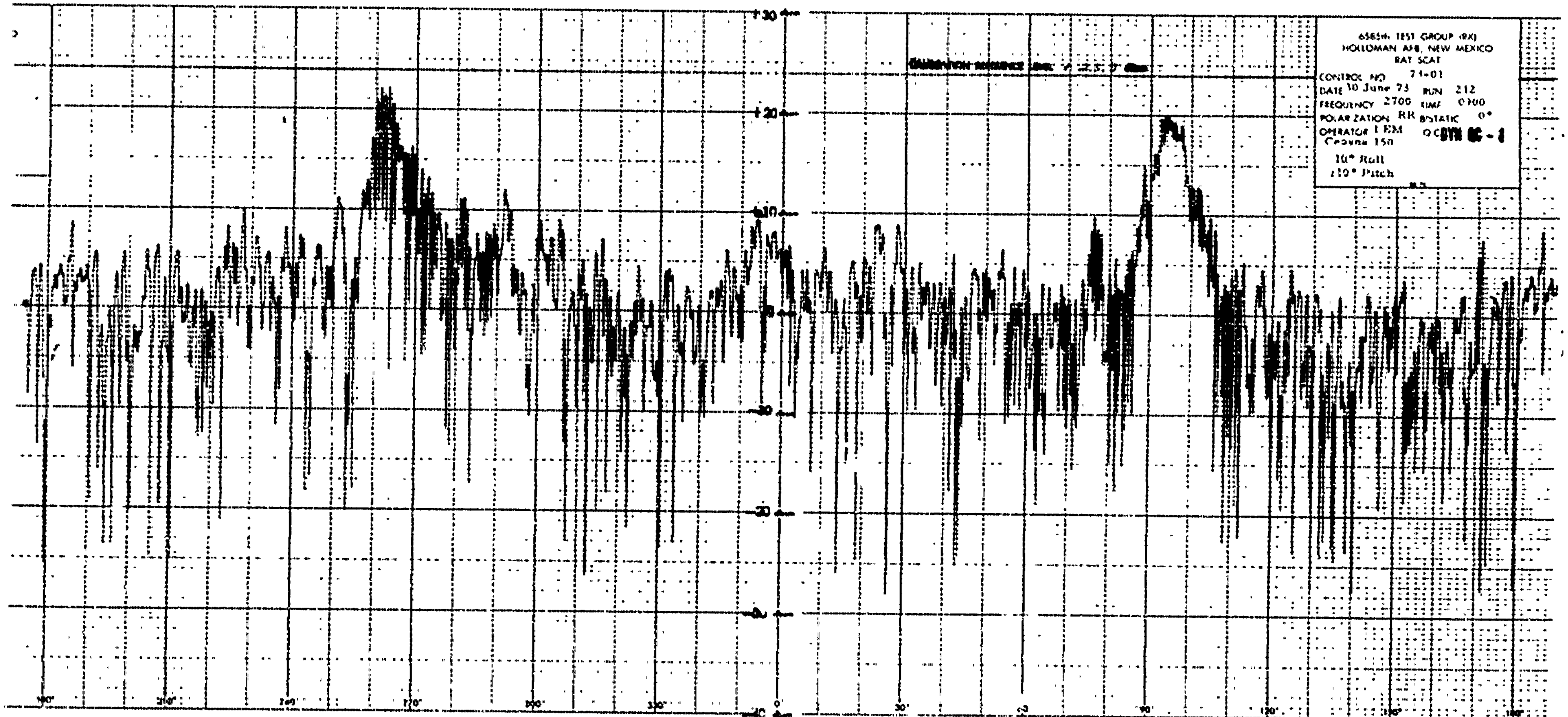

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73 SUN 92
FREQUENCY 2700 TIME 1820
POLARIZATION RR BISTATIC 0°
OPERATOR MM OK DYN 02 - 1
Cessna 150
5° R -1
10 Pits
CALIBRATION
+30 dbsm
+20 dbsm
+10 dbsm
0 dbsm
-10 dbsm
-20 dbsm
-30 dbsm
-40 dbsm
180°
210°
240°
300°
330°
0°
30°
60°
90°
120°
150°
180°

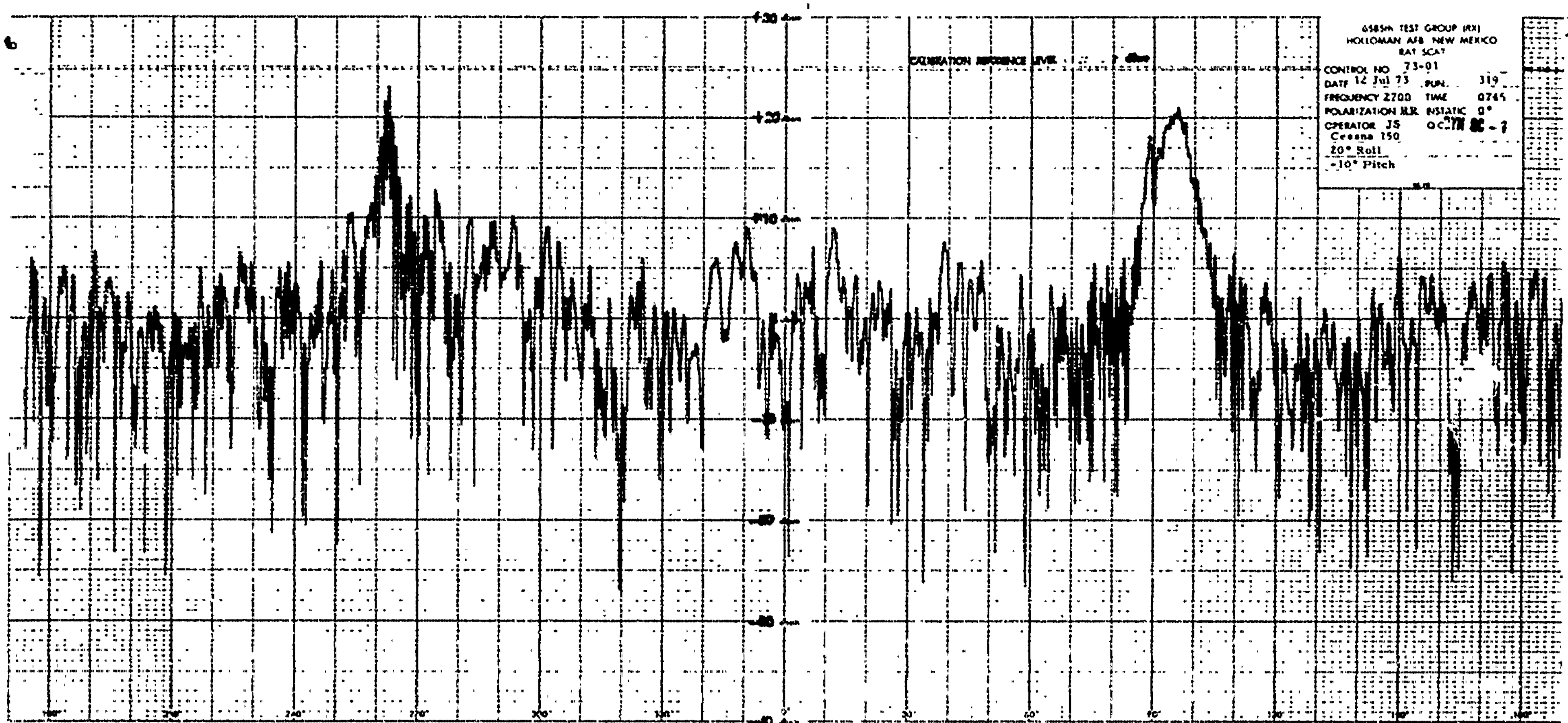

6585th TEST GROUP (RY)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 28 June 73
RUN 158
FREQUENCY 2700
TIME 0830
POLARIZATION RR
BISTATIC 0°
OPERATOR JS
Cessna 150
10° Roll
-10° Pitch
180°
210°
240
270°
300
330°
0
90
120°
150°
180°

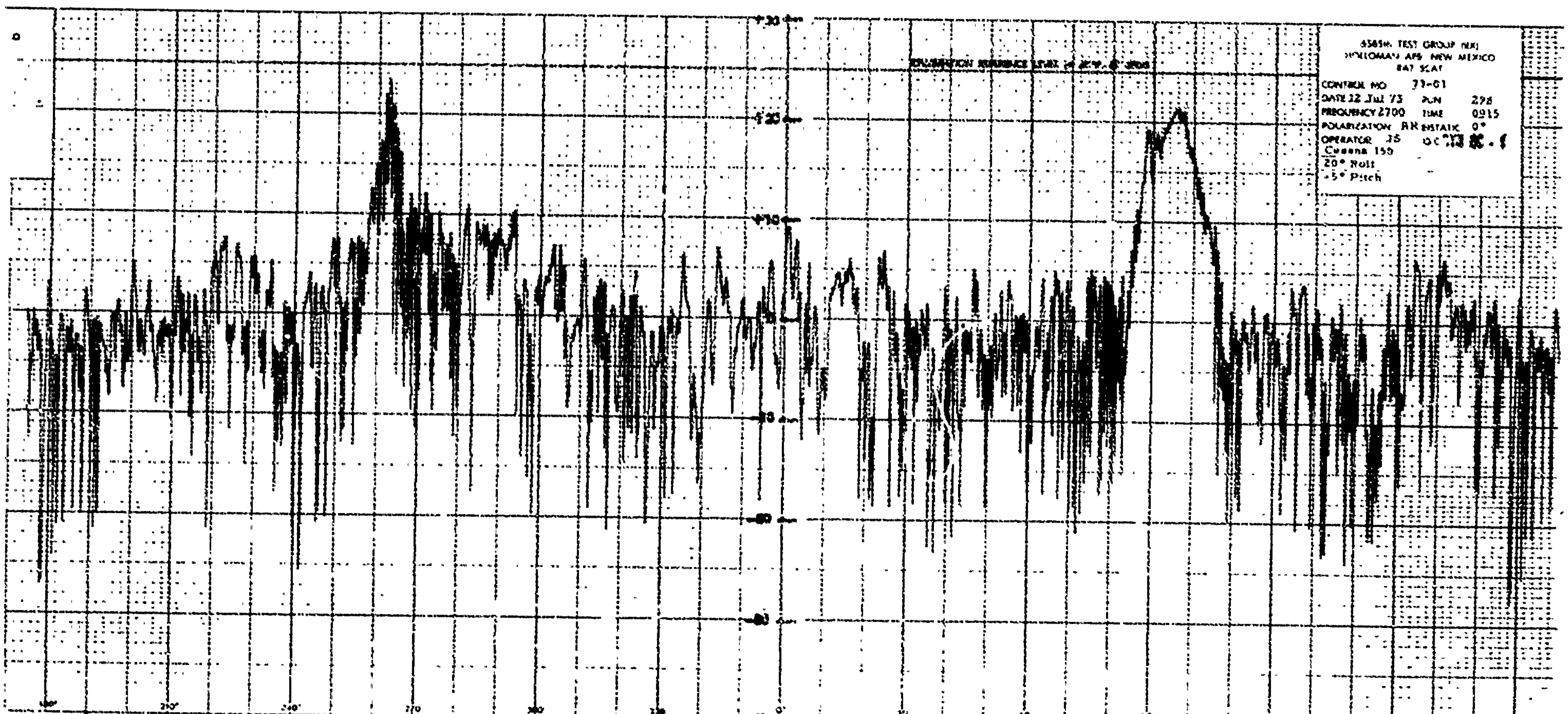

6585th TEST GROUP (FX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-91
DATE 27 June 73 RUN 148
FREQUENCY 2700 TIME 1255
POLARIZATION RR BISTATIC 0°
OPERATOR JS QC
Cessna 150
10° Roll
+5° Pitch

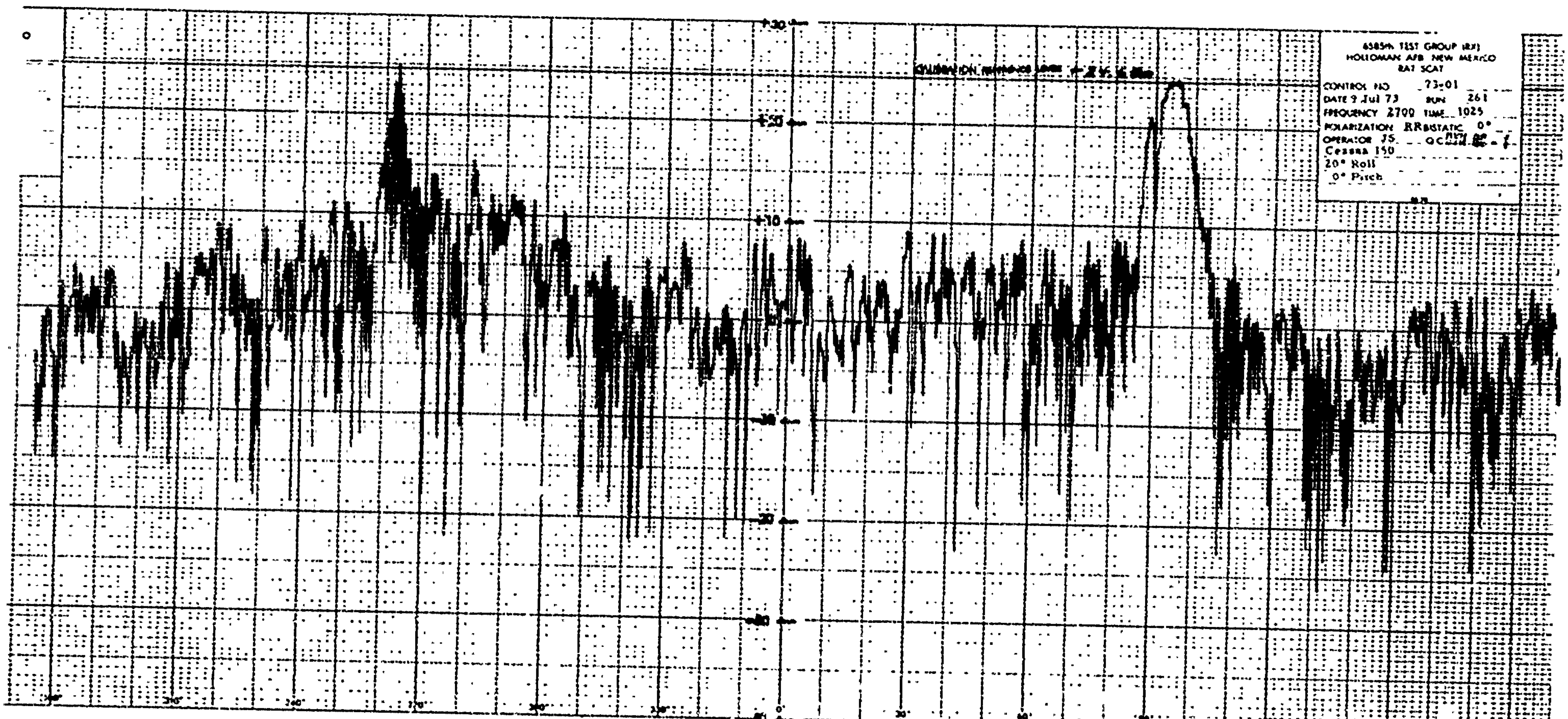

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-51
DATE 27 June 73 RUN 157
FREQUENCY 2700 TIME 0645
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
10° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-30
-40
0
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

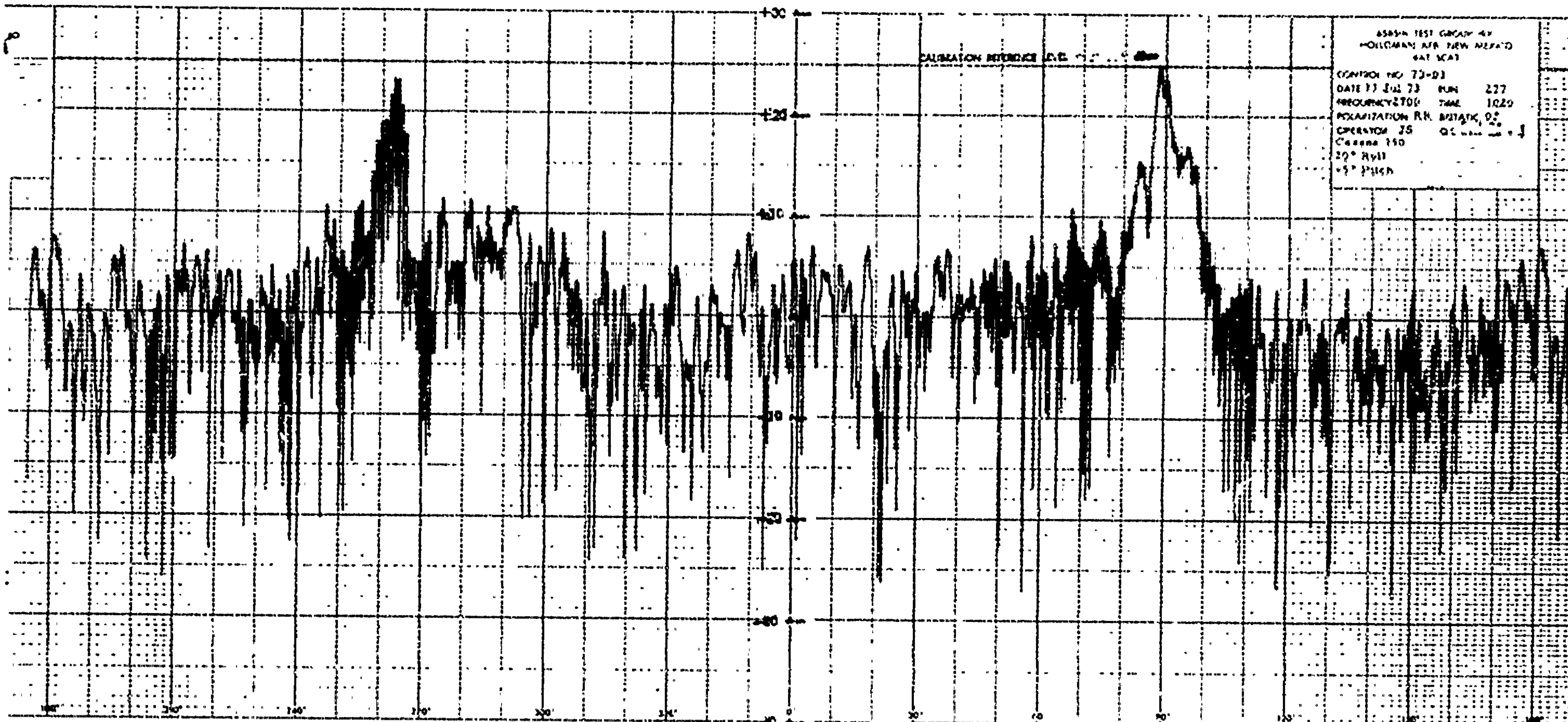

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 29 June 73 RUN 183
FREQUENCY 2700 TIME 0915
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
10° Roll
+5° Pitch
30
20
10
0
10
20
30
40
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

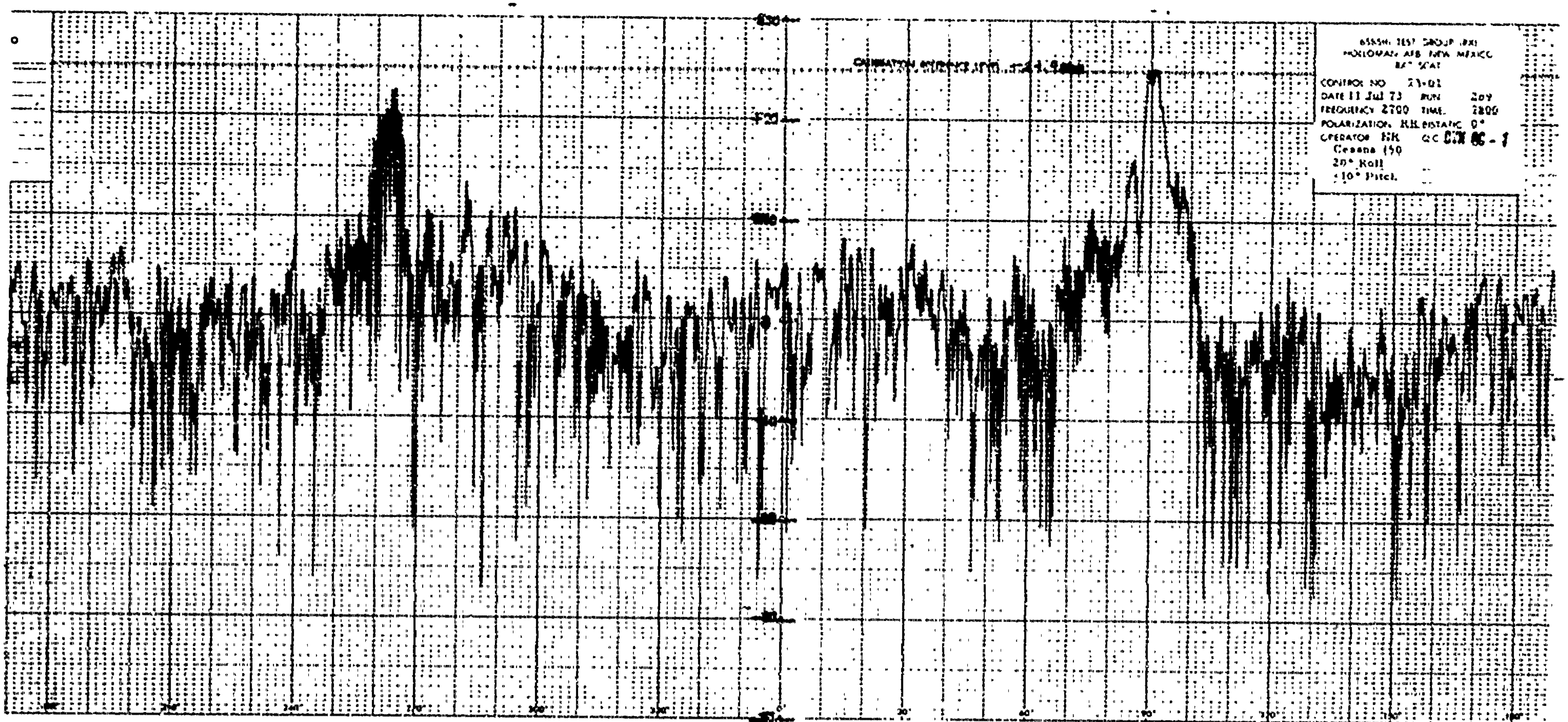

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 30 June 73 RUN 212
FREQUENCY 2700 TIME 0300
POLARIZATION RR BISTATIC 0°
OPERATOR LEM
Cessna 150
10° Roll
±10° Pitch
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
30°
60
90°
120°
150°
180°


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 12 Jul 73
RUN 319
FREQUENCY 2700
TIME 0745
POLARIZATION HH
INSTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
-10° Pitch
CALIBRATION REFERENCE LEVEL
+30
+20
+10
-20
-30
-40

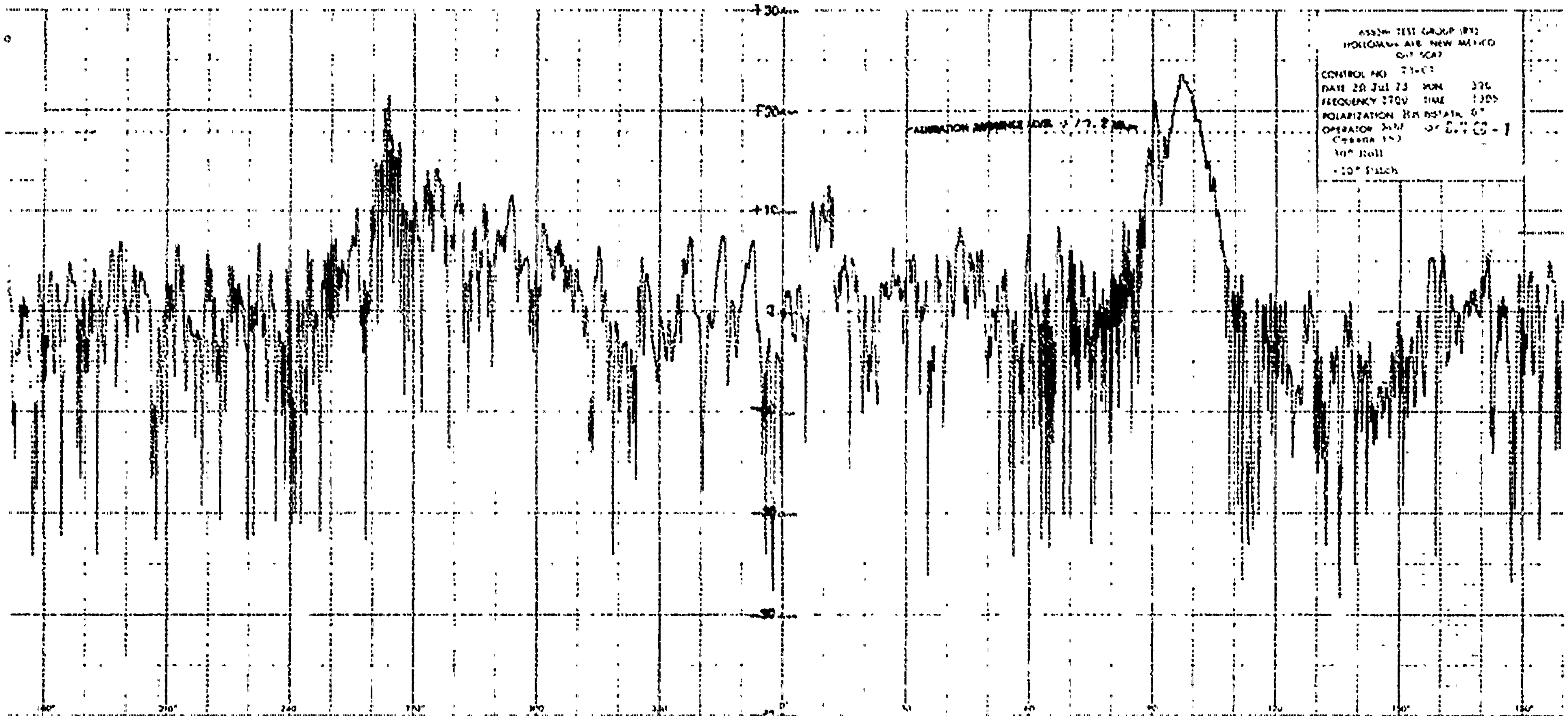

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 22 Jul 73 RUN 298
FREQUENCY 2700 TIME 0915
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
+5° Pitch
180°
210°
240°
270
300
330
0°
30
60
90
120°
150°
180°

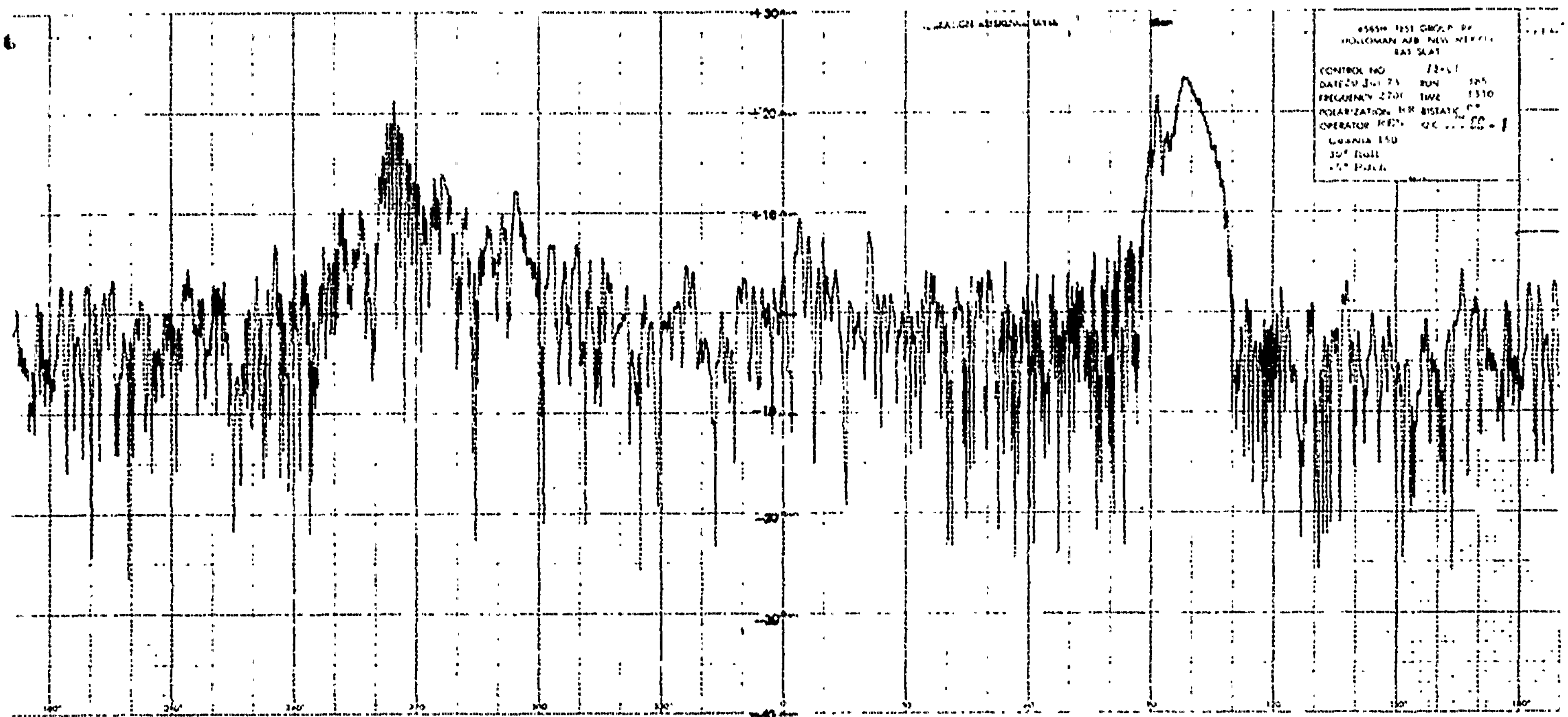


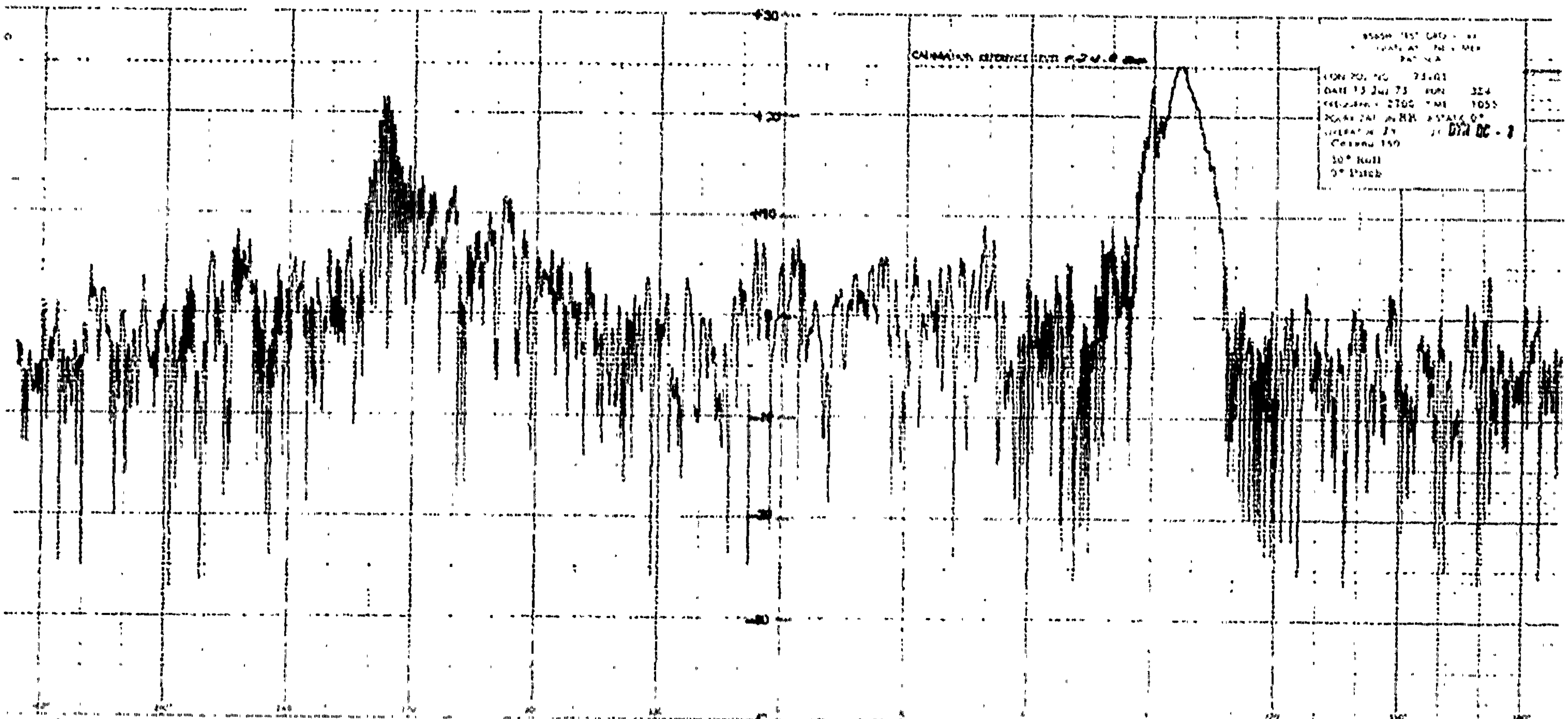

HOLLOMAN AFB NEW MEXICO
CALIBRATION REFERENCE LEVEL
DATE 13 Jul 73
RUN 227
TIME 1020
POLARIZATION RH
Cessna 150
20° Roll
+30
+20
+10
-10
-20
-30
180°
210°
240°
270°
300°
330°
0
30°
60°
90°
120°
150°
180°

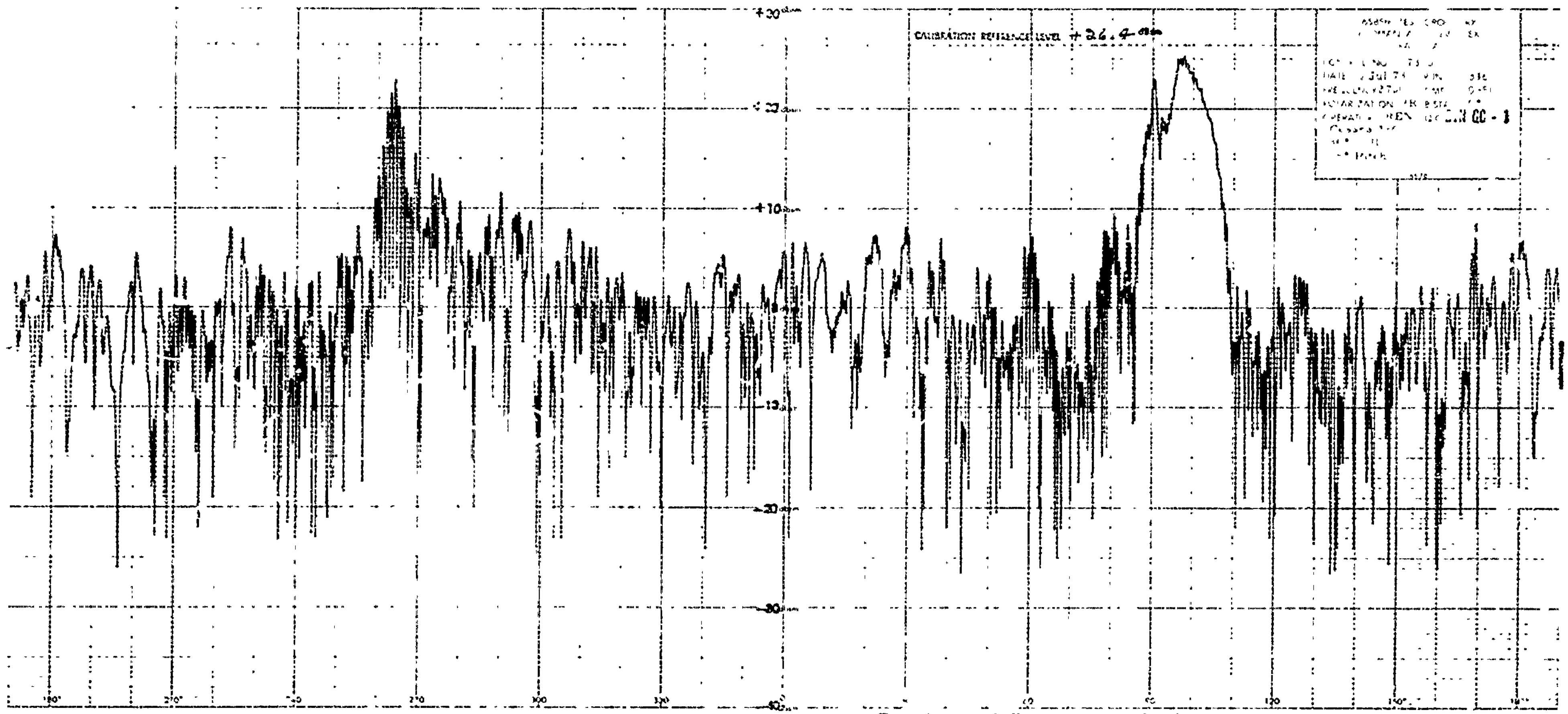


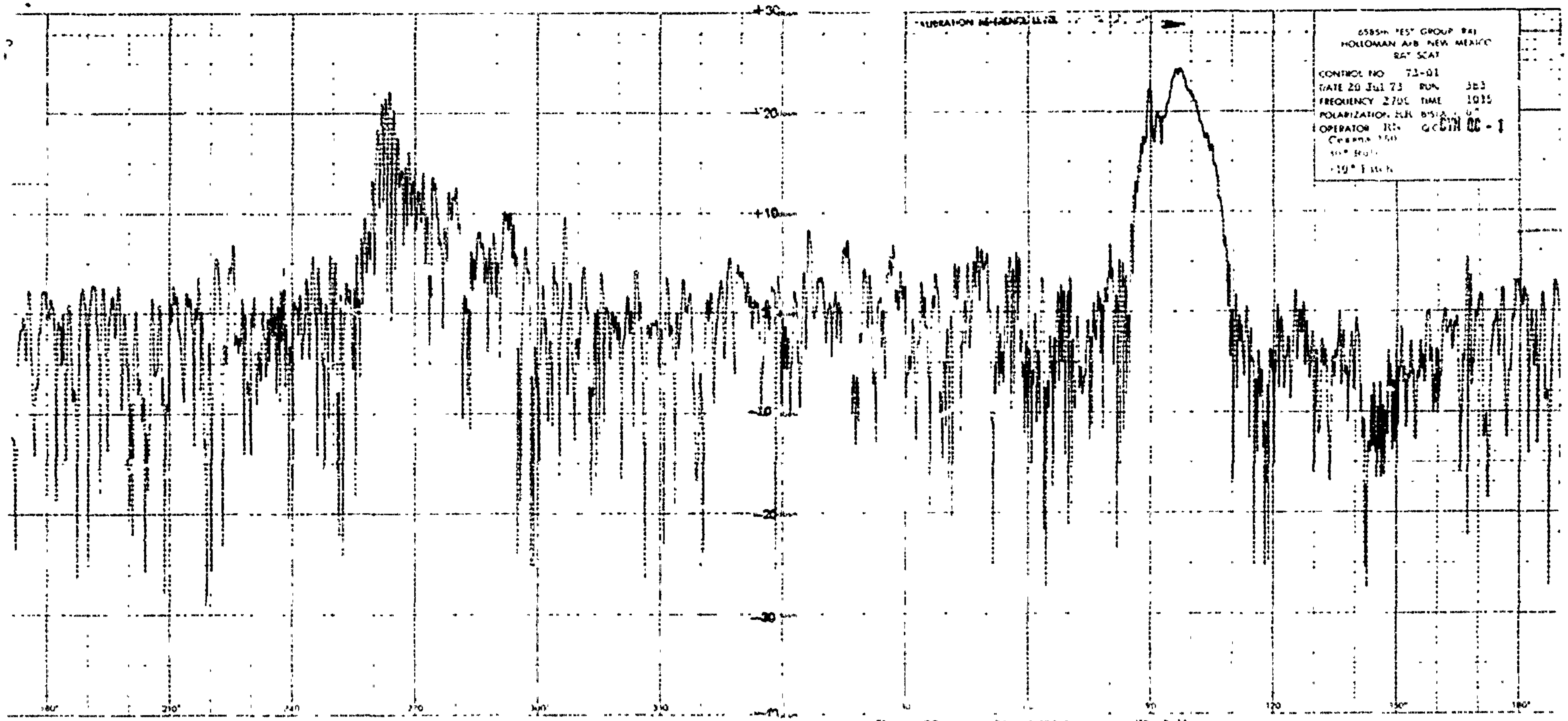
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 11 Jul 73 RUN 209
FREQUENCY 2700 TIME 2800
POLARIZATION HH BISTATIC 0°
OPERATOR HK
Cessna 150
20° Roll
+10° Pitch

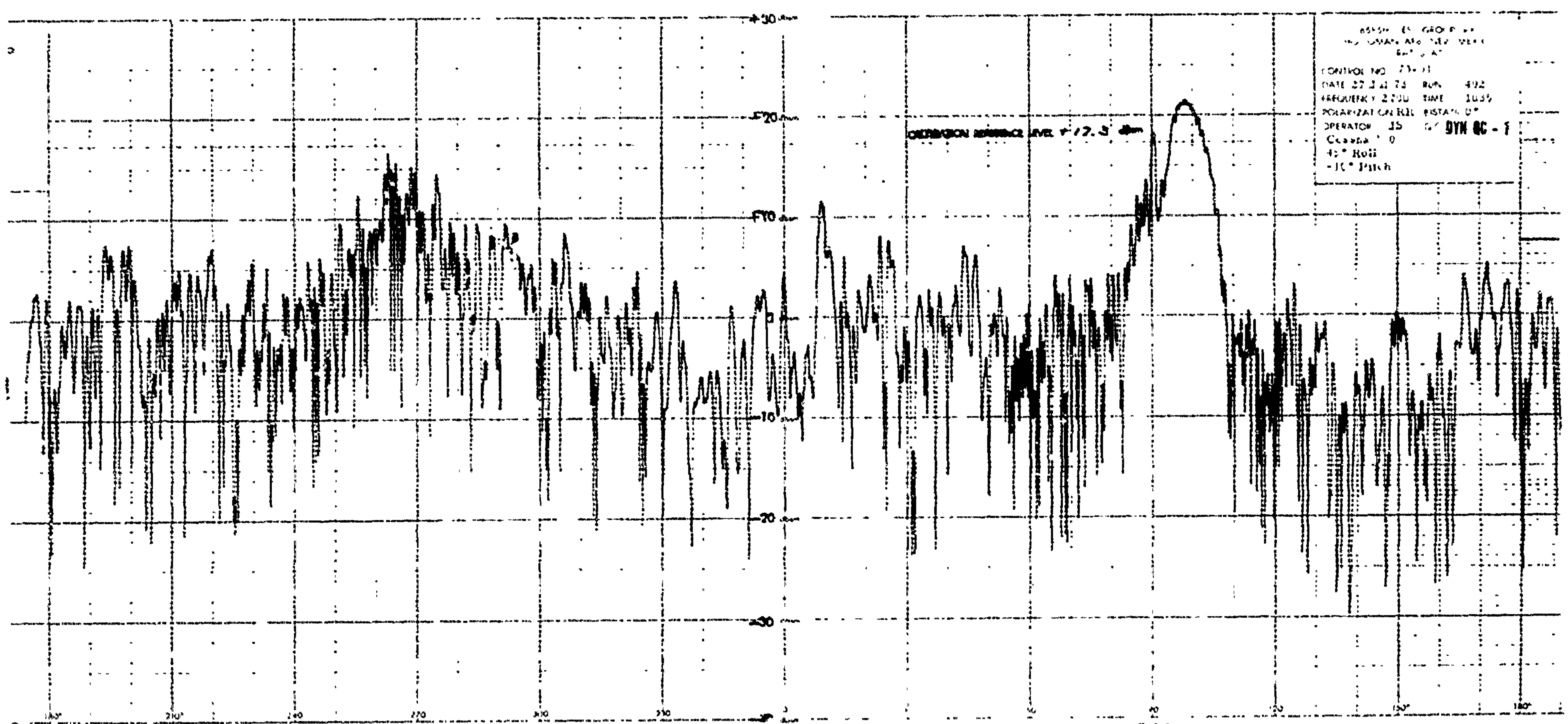

HOLLOMAN AFB NEW MEXICO
CONTROL NO
DATE 20 Jul 73
FREQUENCY
POLARIZATION
OPERATOR
Roll
Pitch
+30
+20
+10
0
-10
-20
-30

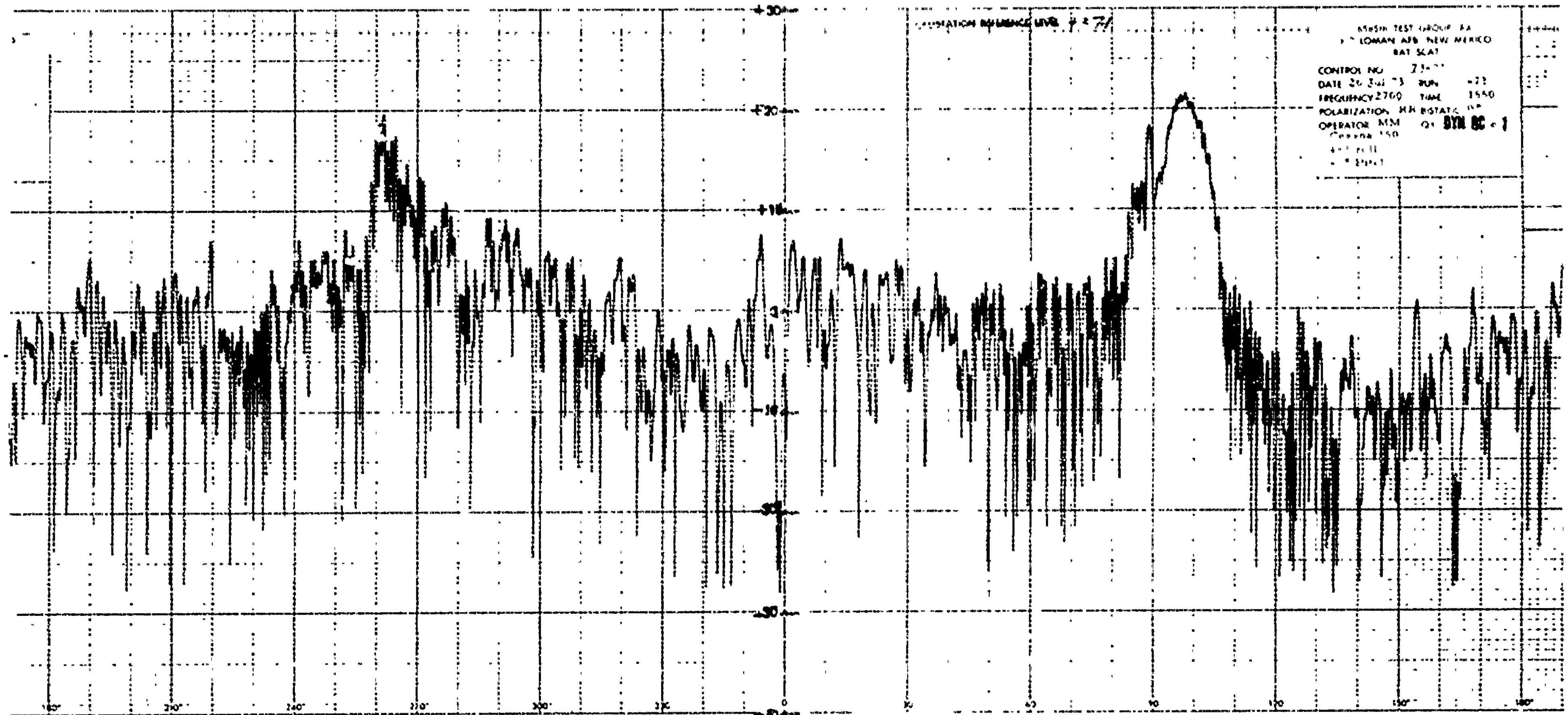

RAT SCAT
CONTROL NO
RUN
TIME 1310
POLARIZATION
BISTATIC
OPERATOR
+30
+20
+10
0
-10
-20
-30
-40


+30
+20
+10
-20
-30
-40
DATE 13 Jul 73
RUN 324
TIME 1055
Cessna 150
30° Roll
0° Pitch

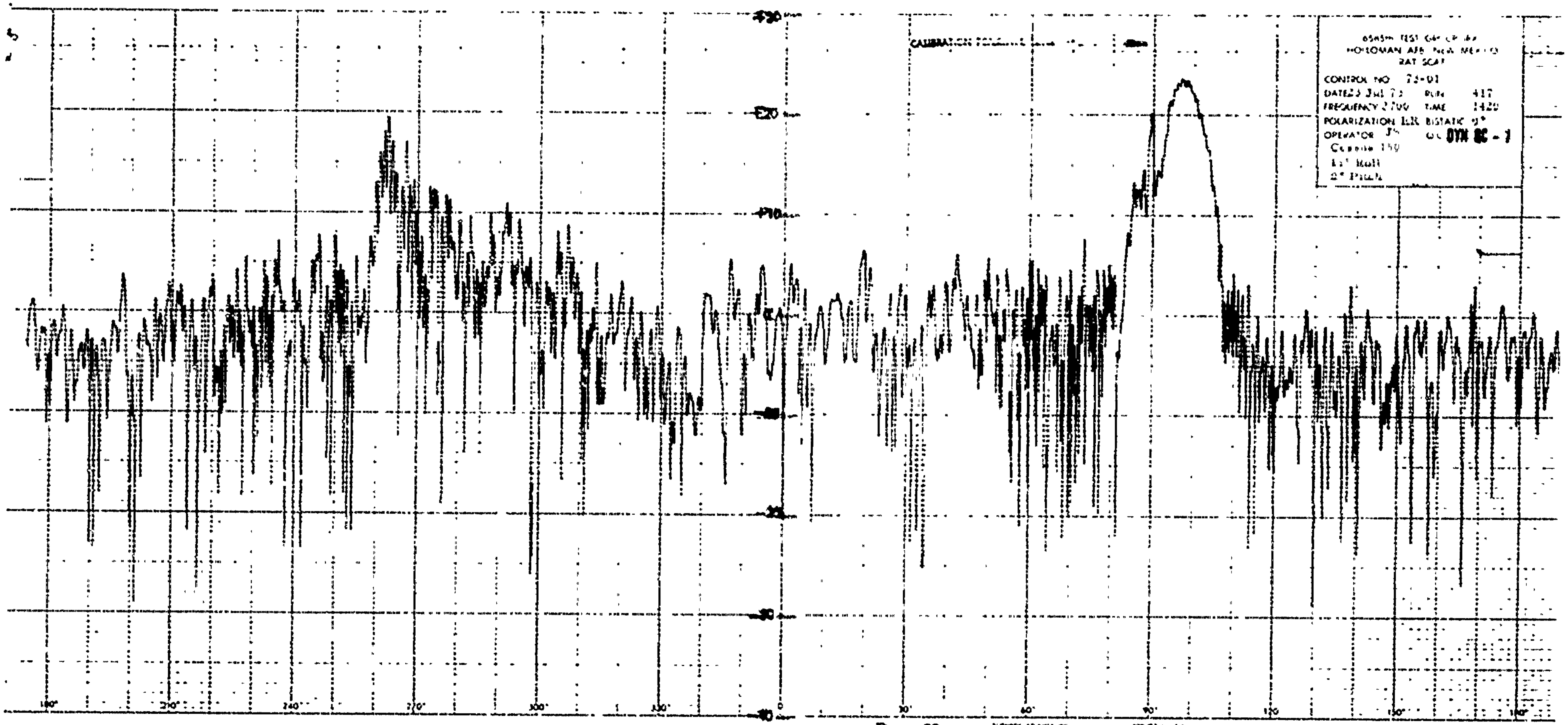

CALIBRATION REFERENCE LEVEL + 26.4 dBm
+20 dBm
+10 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm

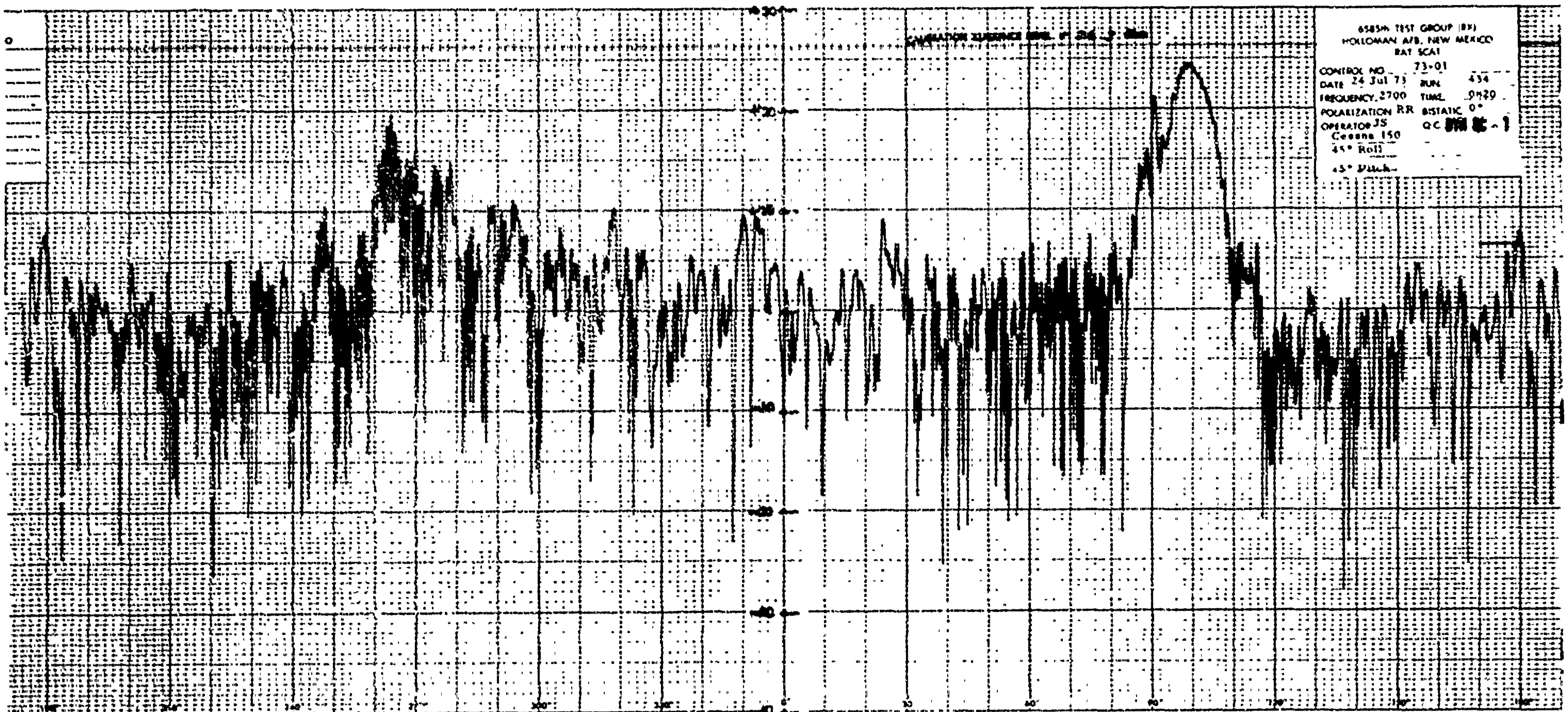

6585th TEST GROUP RAT
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 383
FREQUENCY 2700 TIME 1015
POLARIZATION HH
OPERATOR
Cessna 150
+10° Pitch
+30
+20
+10
-10
-20
-30
180°
210°
240
270
300°
330
90
120
150°
180°

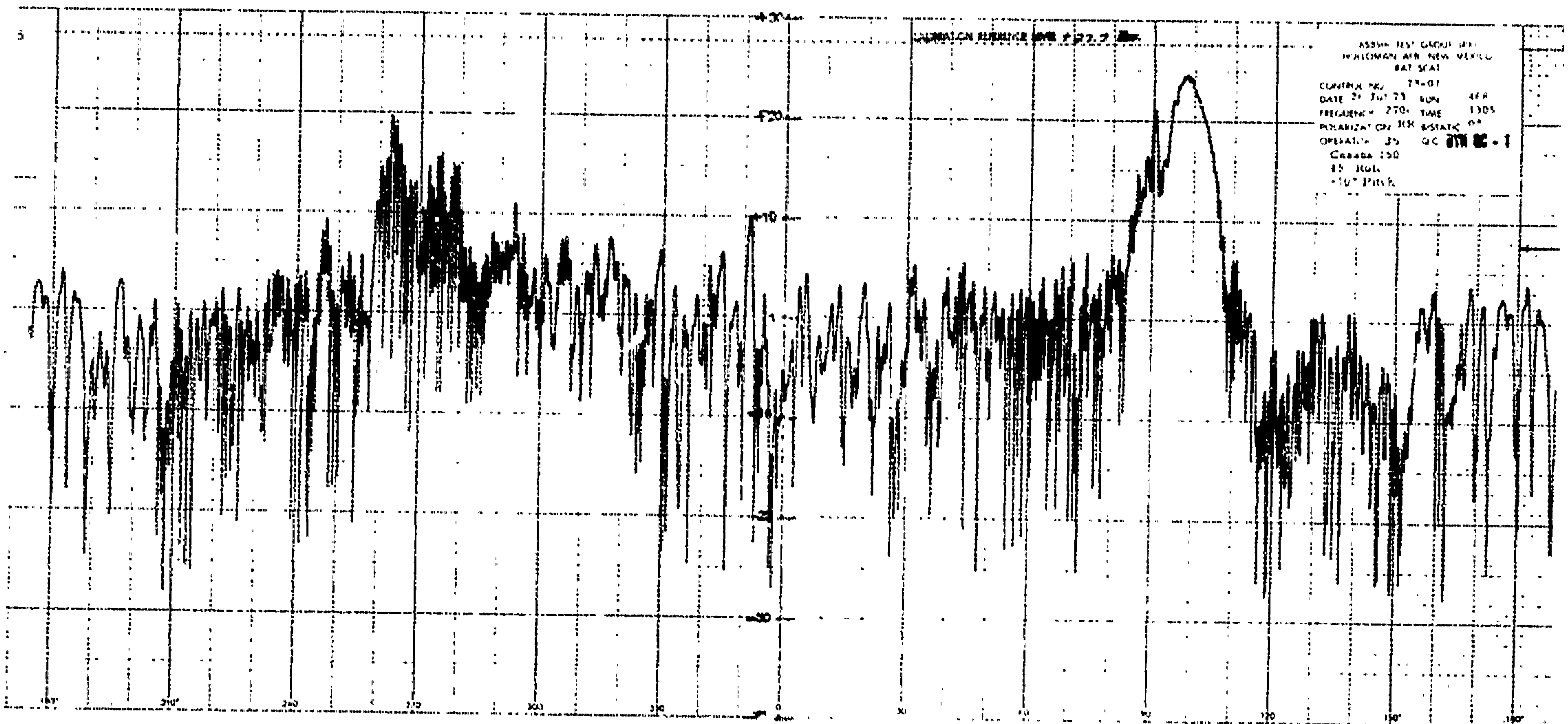

CONTROL NO.
DATE
FREQUENCY 2700
TIME 1035
POLARIZATION RHC
DYN 0C - 1
CALIBRATION REFERENCE LEVEL +72.5 dBm
45° Roll
+10° Pitch
+30
+20
+10
0
-10
-20
-30
180°
210°
240
270
300
330
0
30
60
90
120
150°
180°

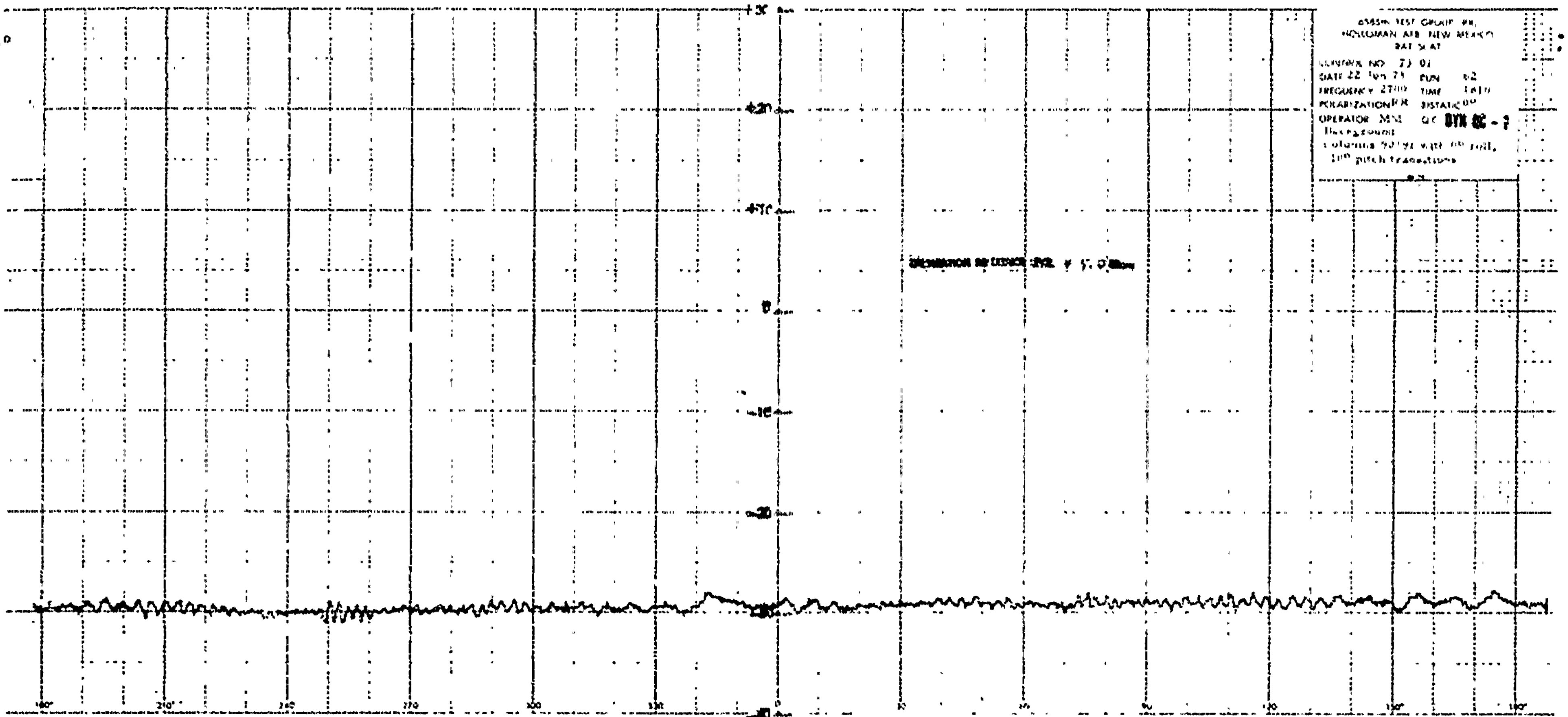


REFERENCE LEVEL
TEST GROUP
LOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO
DATE
RUN
FREQUENCY 2700
TIME 1550
POLARIZATION HH
BISTATIC
OPERATOR MM
DYN RC = 1
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330
0
30
60
90
120
150°
180°

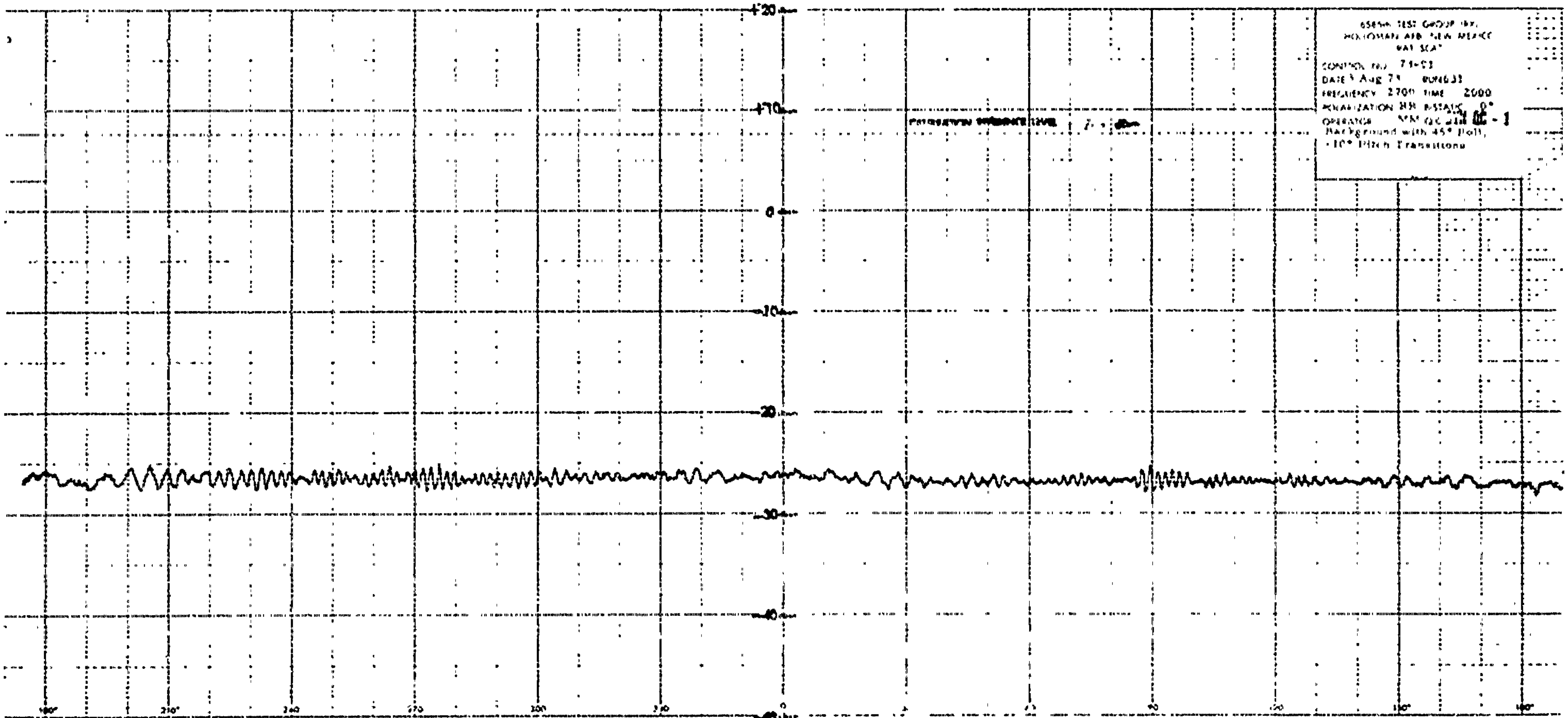

HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
RUN 417
TIME 1420
BISTATIC
OPERATOR
DYN 8C - 1
CALIBRATION
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0
30°
60°
90°
120
150°
180°

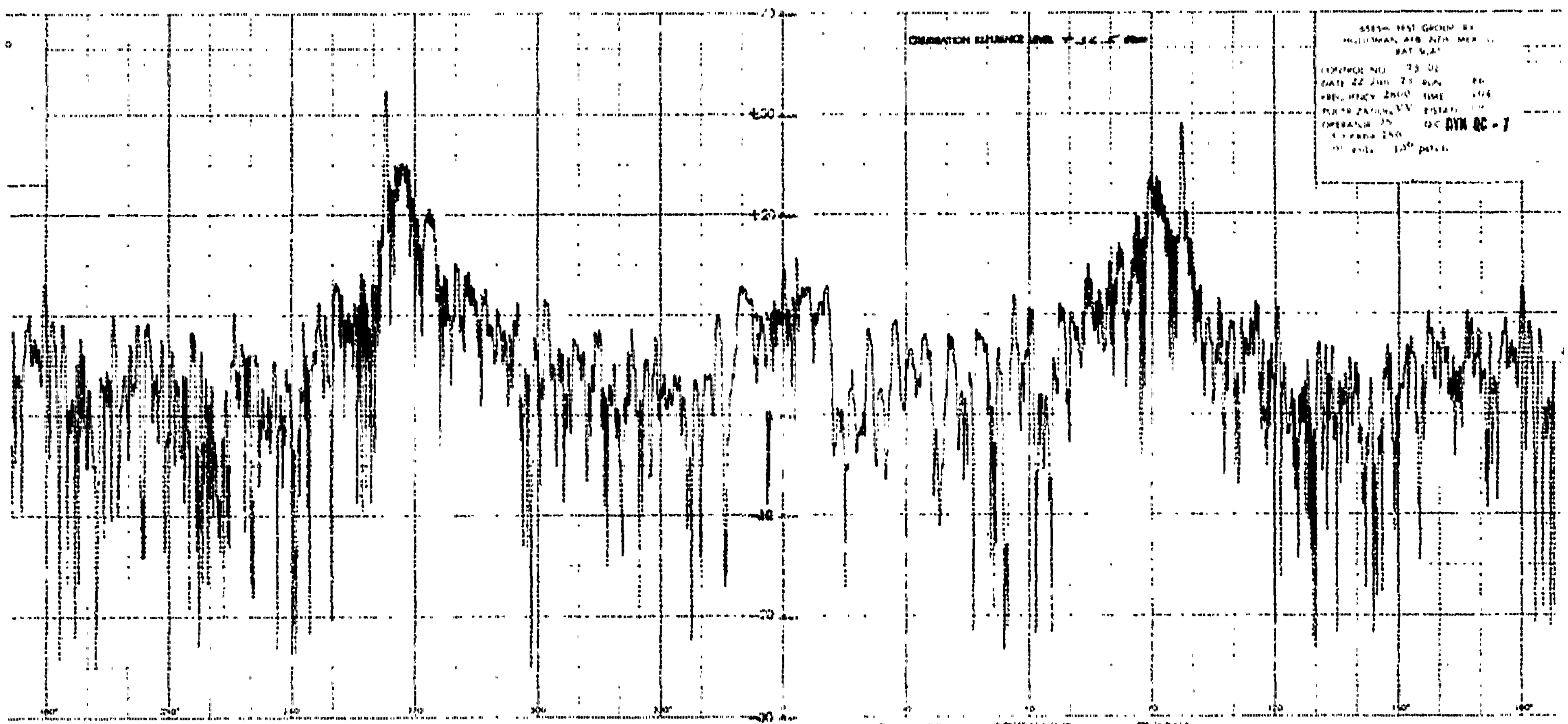

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 24 Jul 73 RUN 434
FREQUENCY 2700 TIME 0920
POLARIZATION RR BISTATIC 0°
OPERATOR JS QC [redacted] -1
Cessna 150
45° Roll
45° Pitch

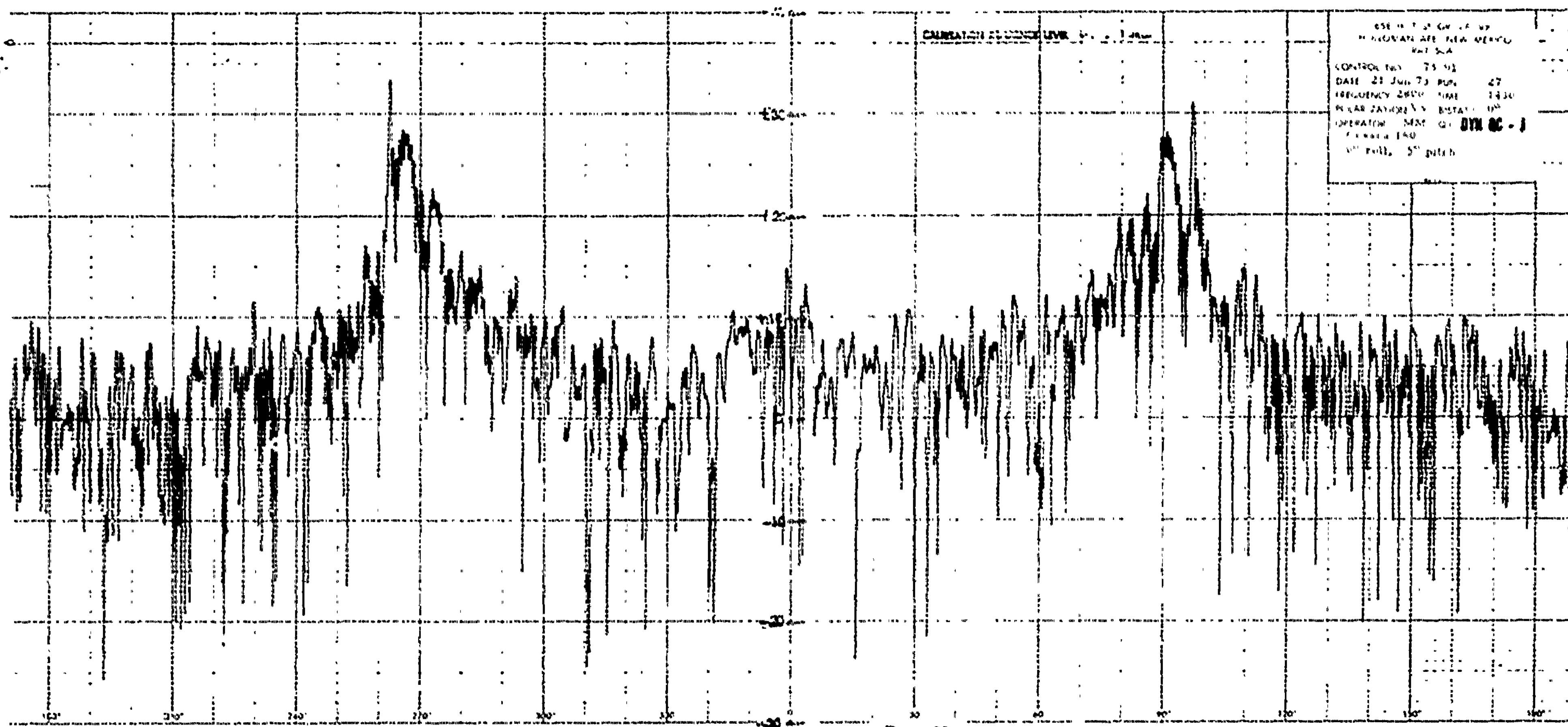

CALIBRATION REFERENCE LEVEL +22.7 dBm
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 21 Jul 73 RUN 4FF
FREQUENCY 270 TIME 1305
POLARIZATION HH BISTATIC 0°
OPERATOR JS QC
Cessna 150
15° Roll
+10° Pitch

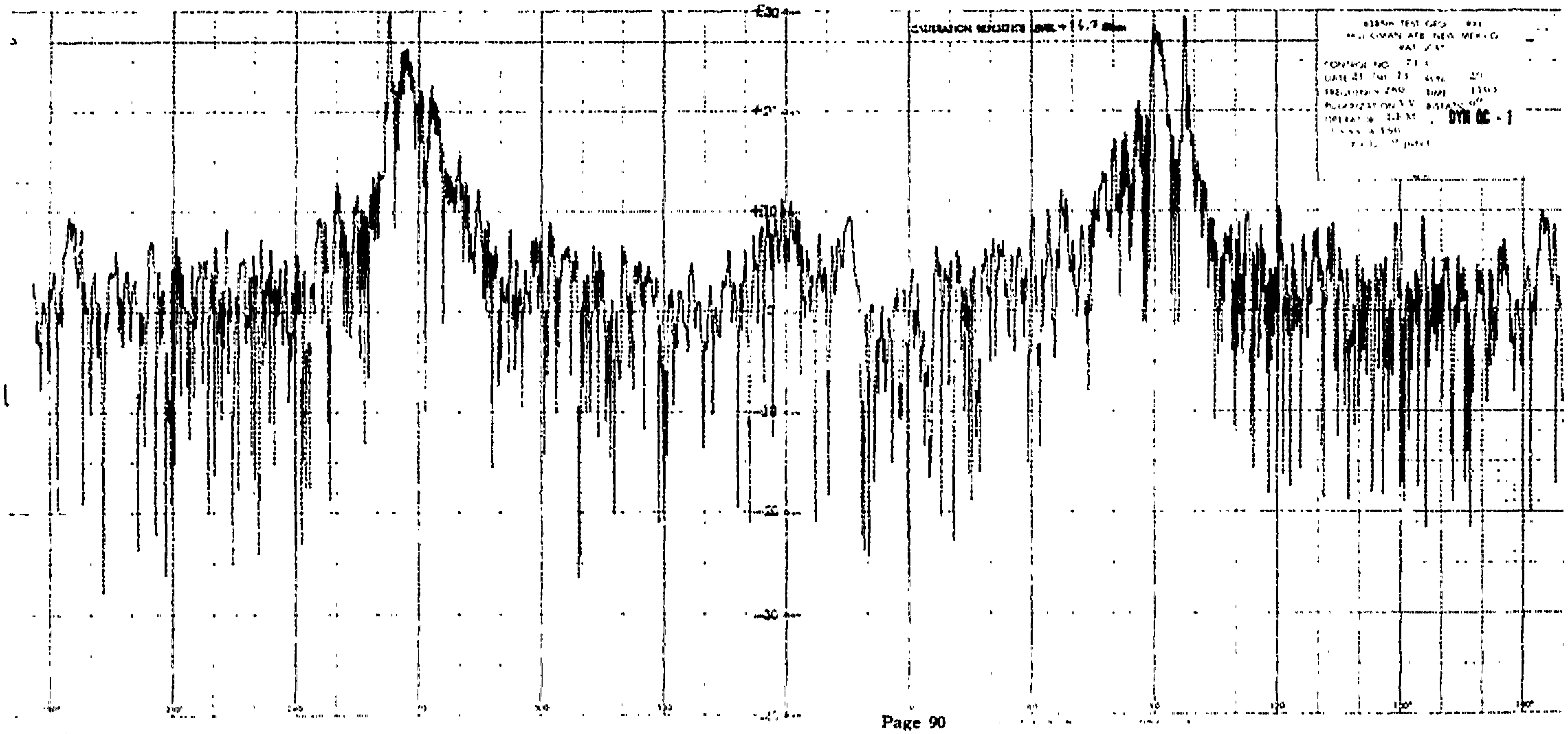


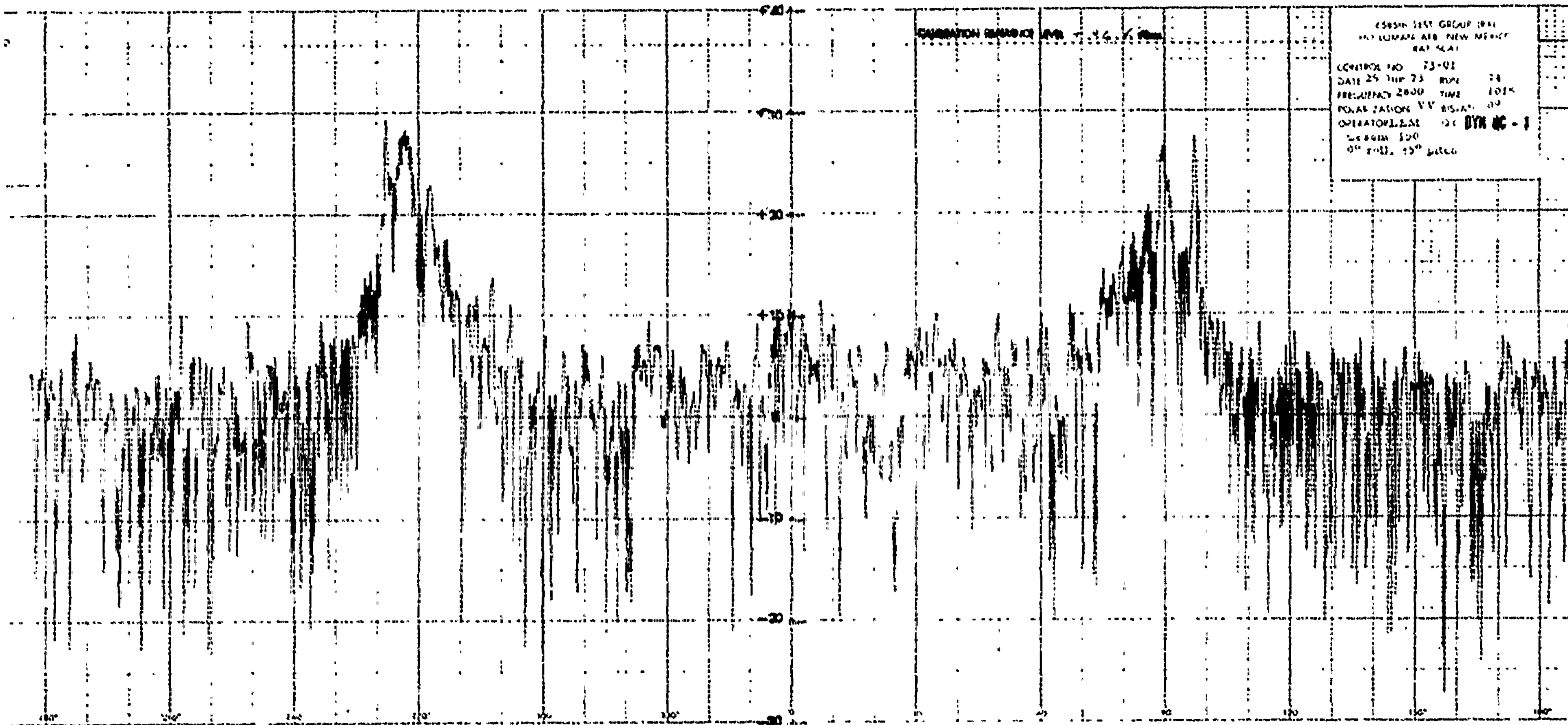
HOLLOMAN AFB NEW MEXICO
RUN 02
FREQUENCY 2700
POLARIZATION
BISTATIC
OPERATOR
+30
+20
+10
0
-10
-20
-30

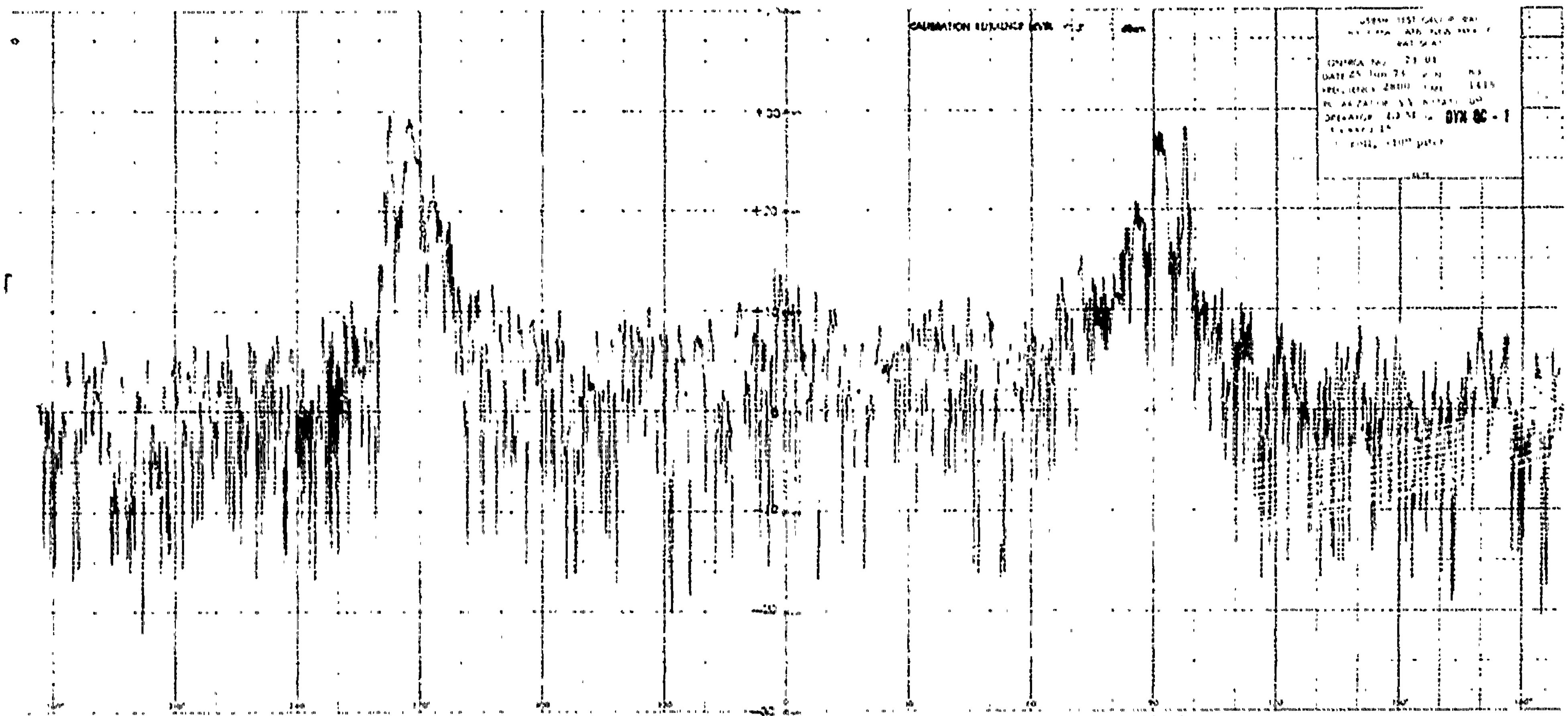

HOLLOMAN AFB NEW MEXICO
RAT SCAT
DATE 5 Aug 71
FREQUENCY 2700 TIME 2000
Background with 45° Roll,
10° Pitch Transitions
+20
+10
0
-10
-20
-30
-40

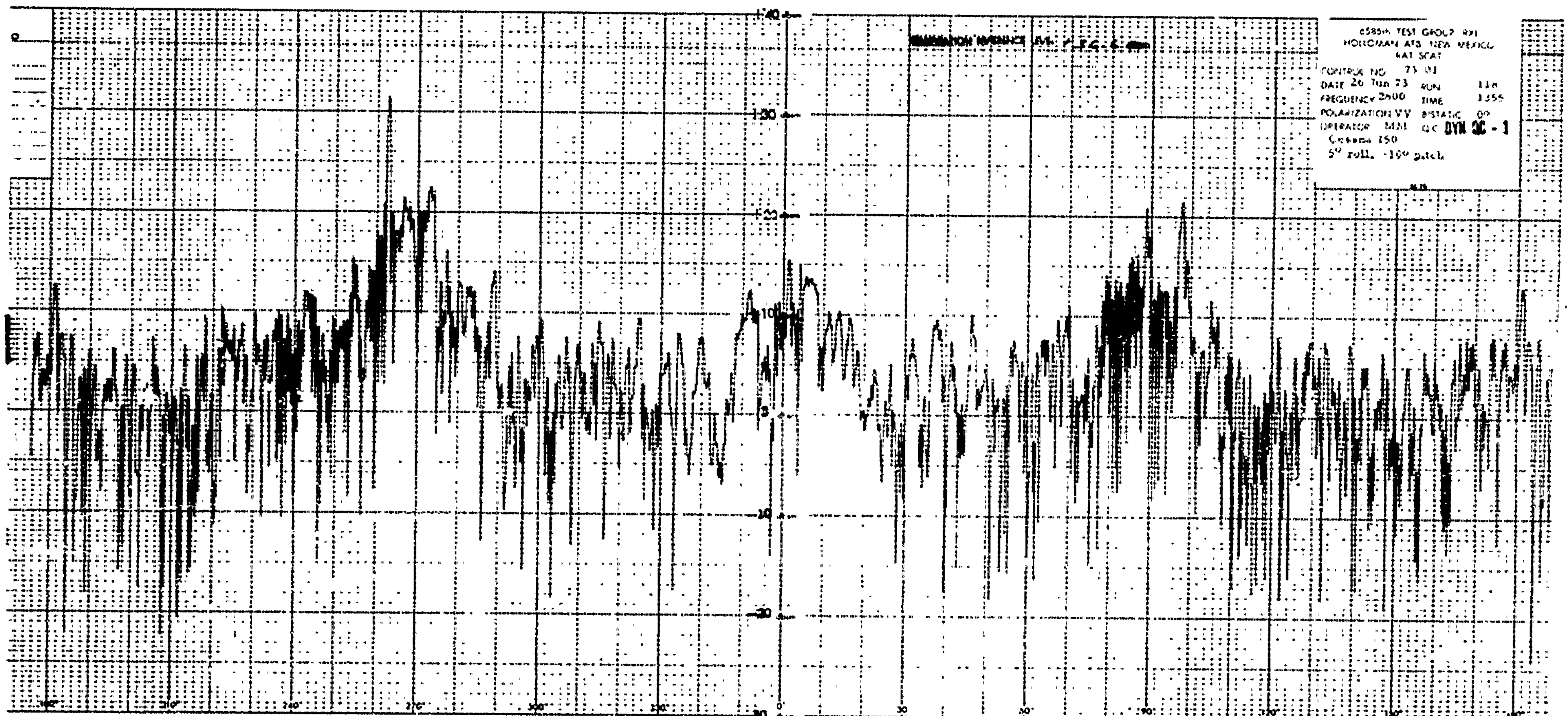


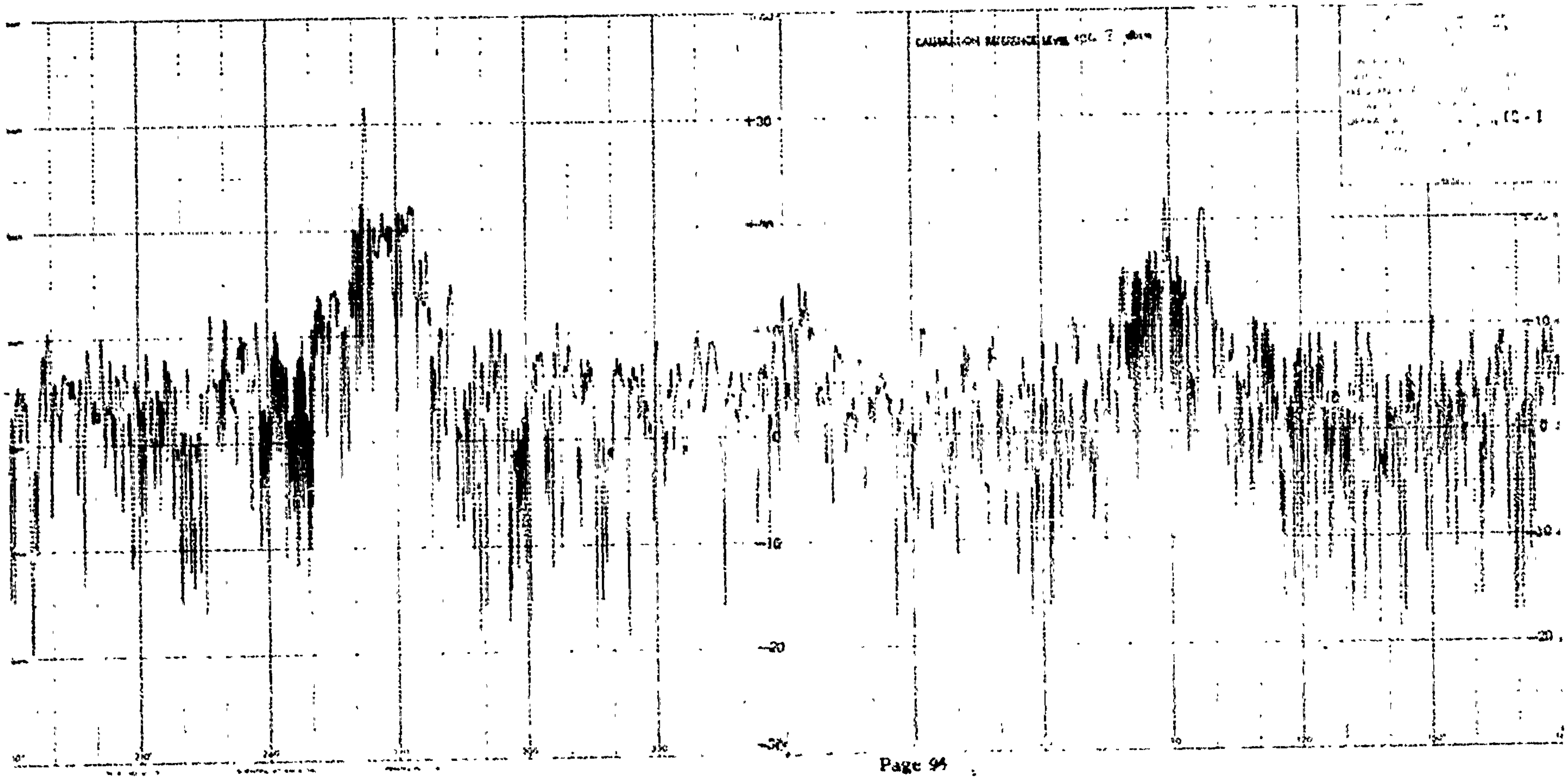

DYN RC - 1
270°
300°
90°
120°
150°

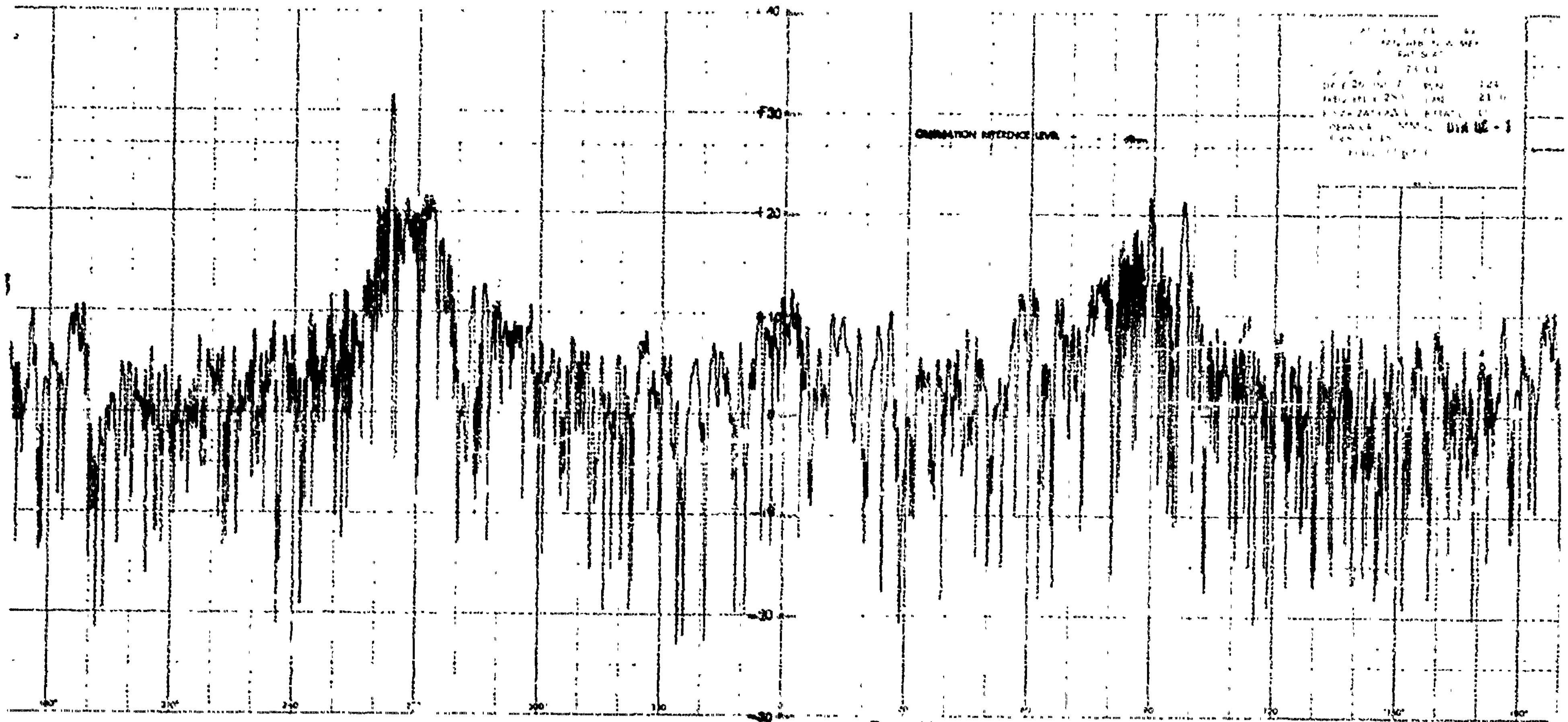

CALIBRATION REFERENCE LEVEL + 16.7 dBm
DYN DC - 1
+30
+20
+10
-10
-20
-30

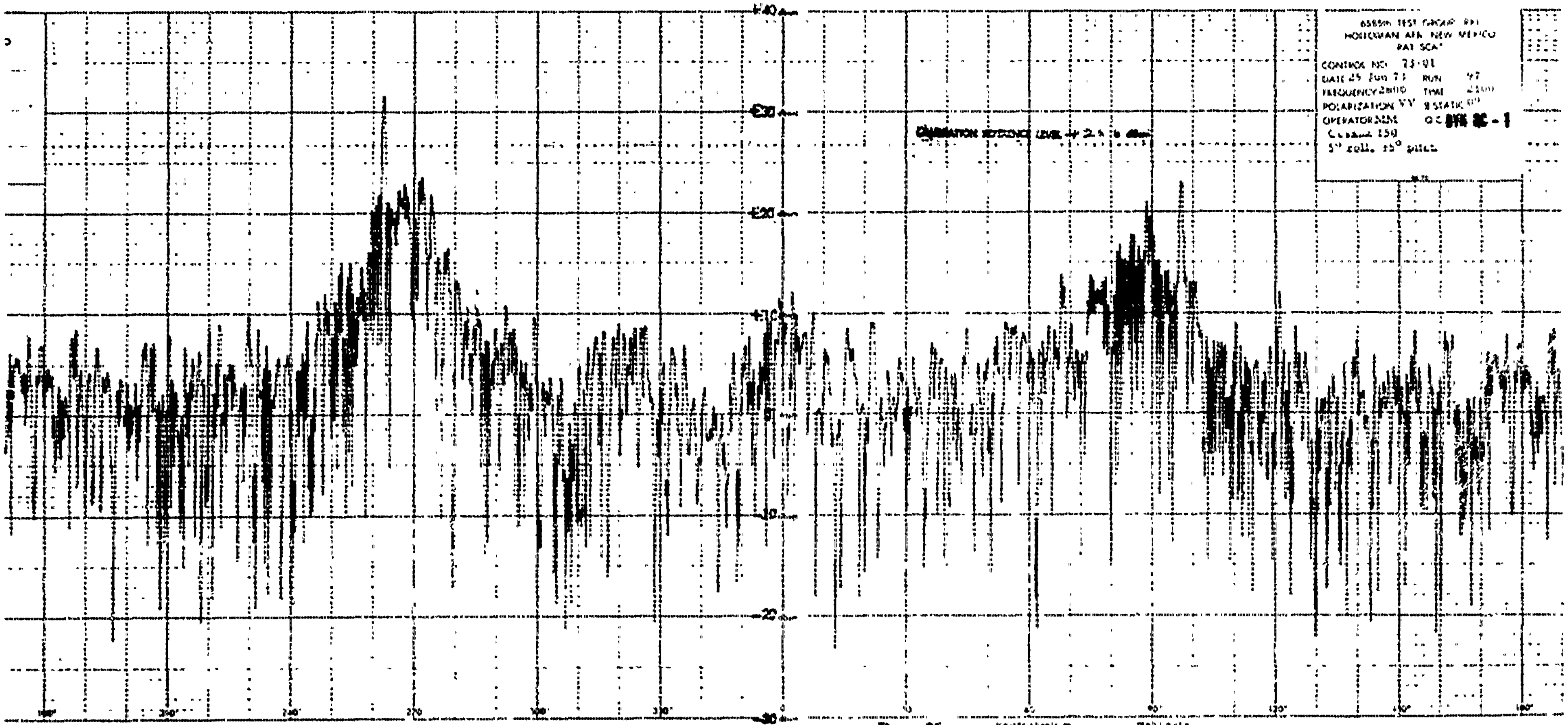

+30
+20
+10
0
-10
-20
-30


CALIBRATION REFERENCE LEVEL
dBm
DYX 8C - 1

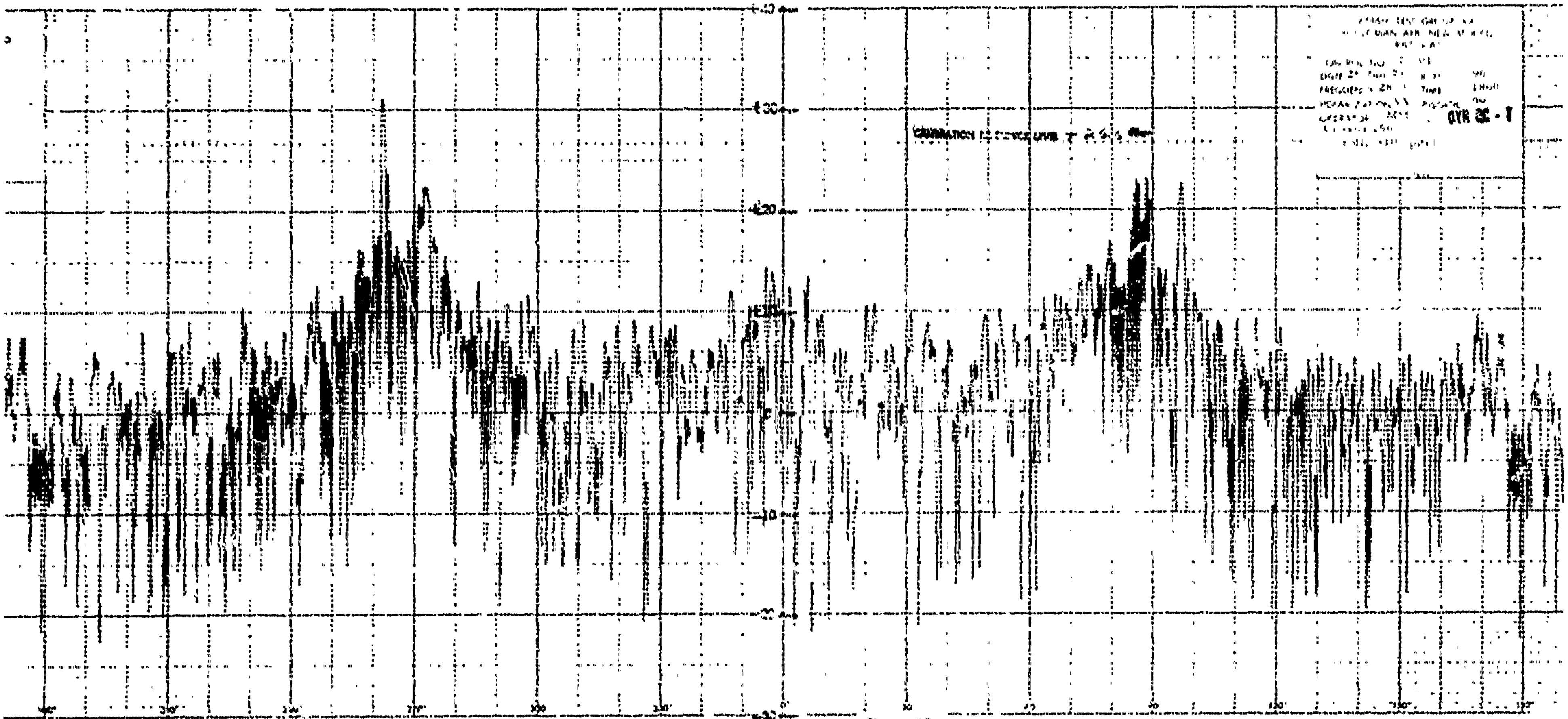

6585th TEST GROUP RXI
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73 01
DATE 26 Jun 73
RUN 118
FREQUENCY 2600
TIME 1355
POLARIZATION VV
BISTATIC 0°
OPERATOR MM
QC DYN 3C - 1
Cessna 150
5° roll, -10° patch
+40 dbm
+30 dbm
+20 dbm
+10
0
-10
-20 dbm
-30 dbm
180°
210°
240°
270°
300°
330°
0°
30
60°
90°
120°
150°
180°

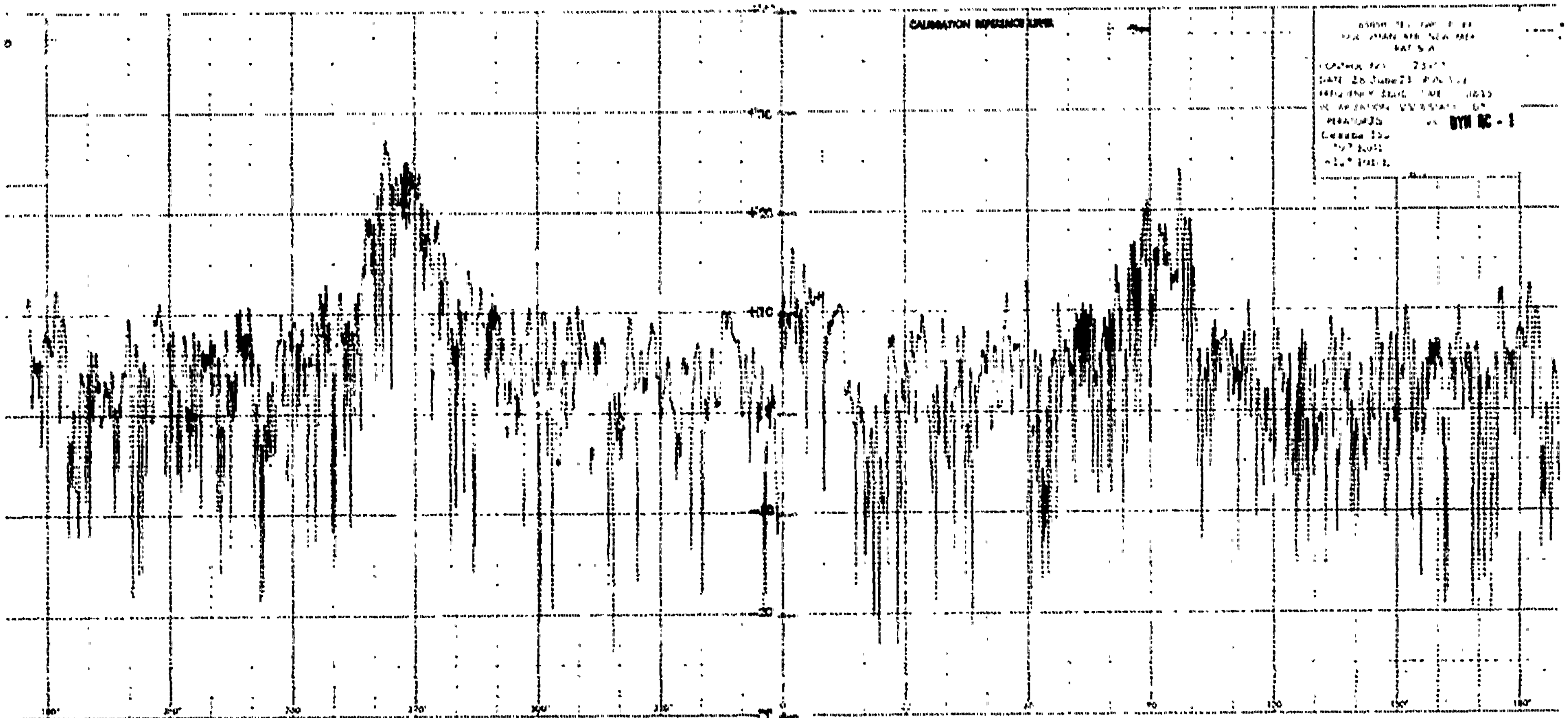

CALIBRATION REFERENCE LEVEL
+30
-10
-20
IC-1

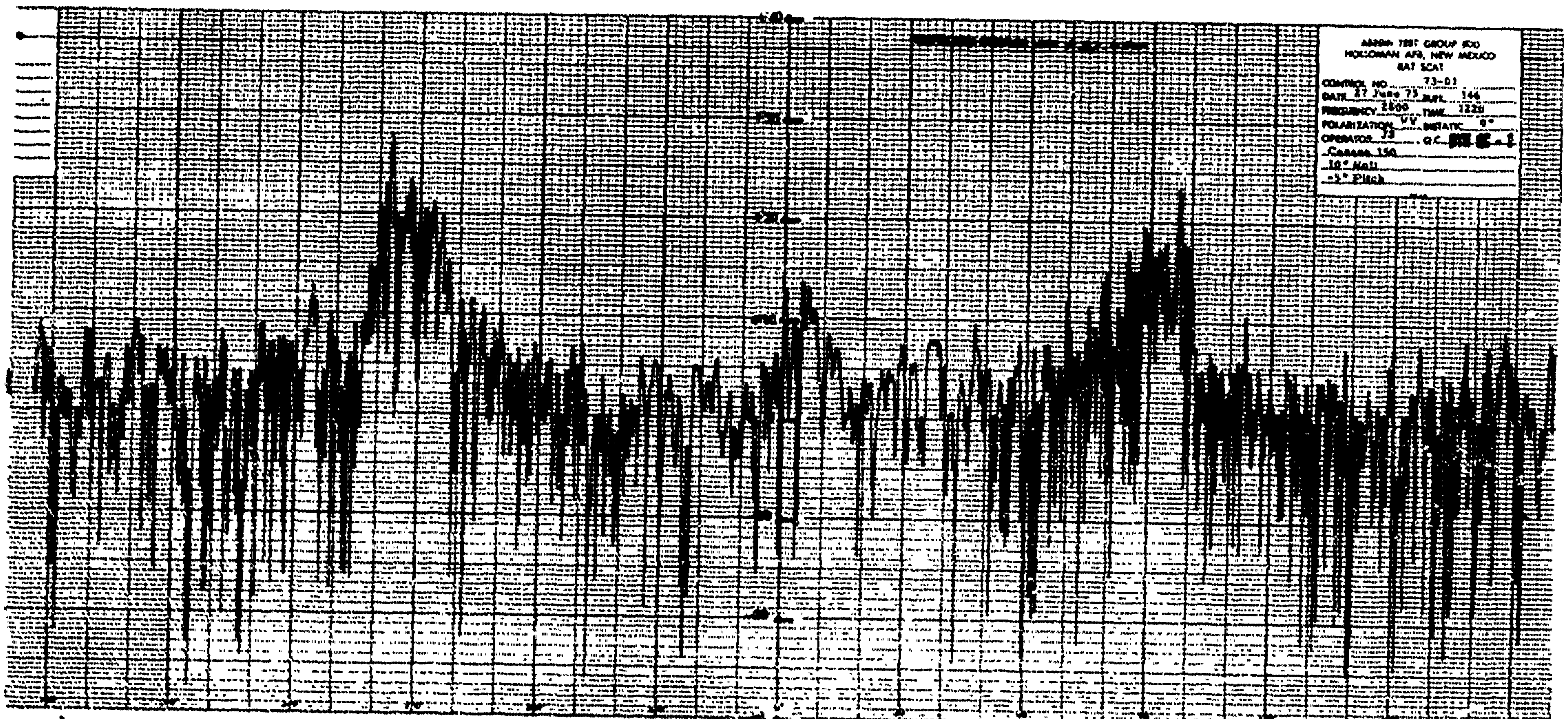

+40
+30
CALIBRATION REFERENCE LEVEL
+20
+10
0
-10
-20
-30
0
30
60
90
120
150
180
210
240
270
300
330
DIA. 18 - 1



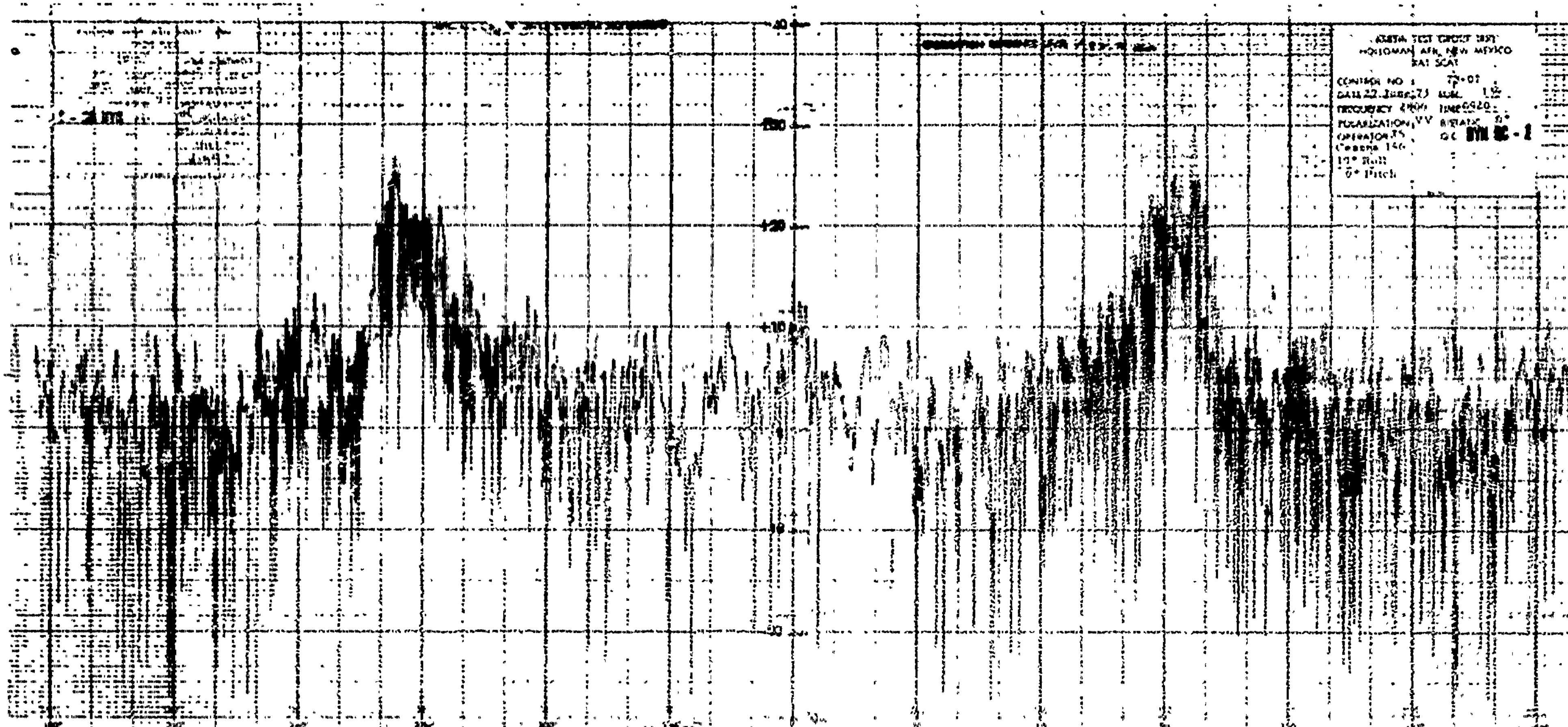
6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-91
DATE 25 Jun 73
RUN 97
FREQUENCY 2810
POLARIZATION VV
OPERATOR
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270
300°
330°
0
30
60
90°
120°
150°
180°

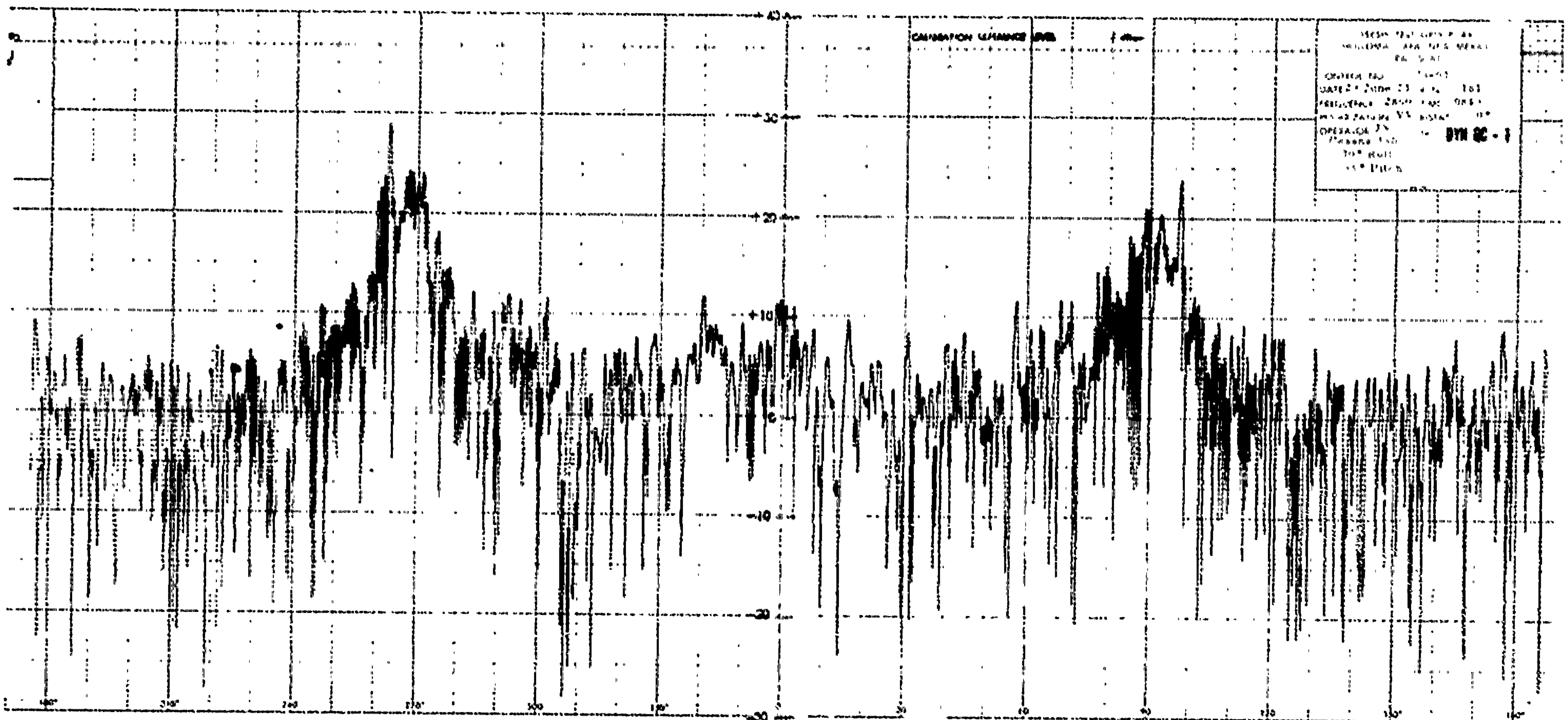



CALIBRATION REFERENCE LINE
DYN RC - 1

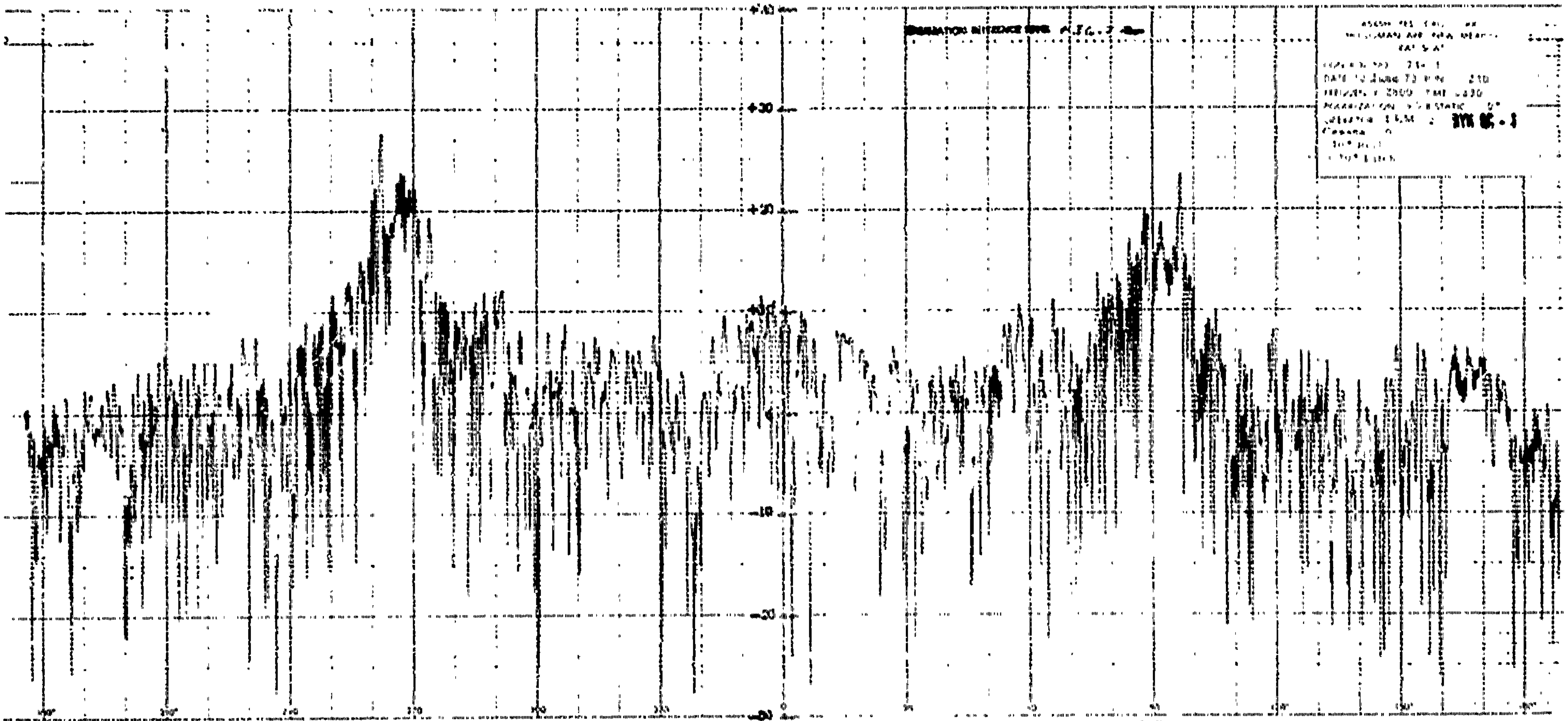


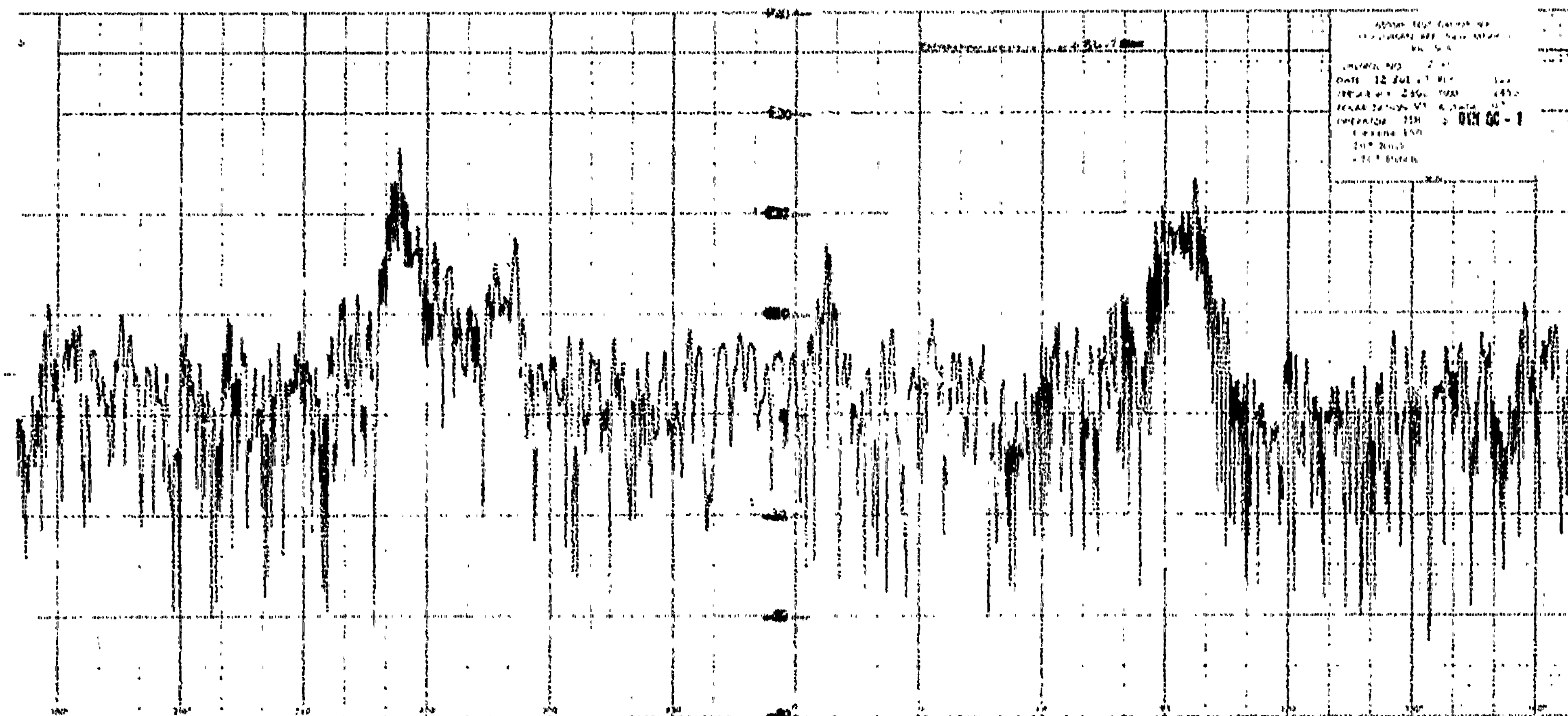
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 27 June 73 RUN 144
FREQUENCY 2800 TIME 1220
POLARIZATION VV BISTATIC 0°
OPERATOR 73 Q.C.
Cessna 150
10° Roll
-5° Pitch

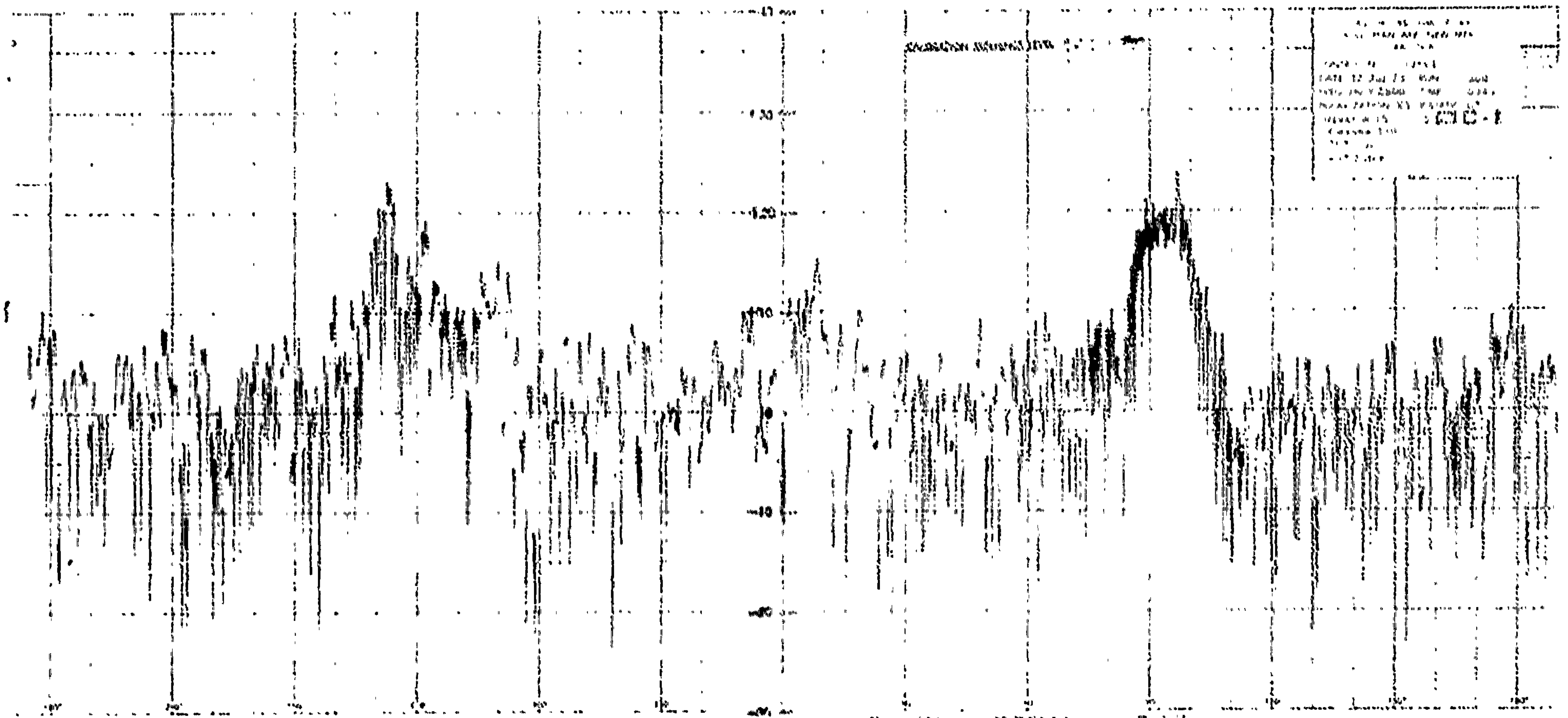


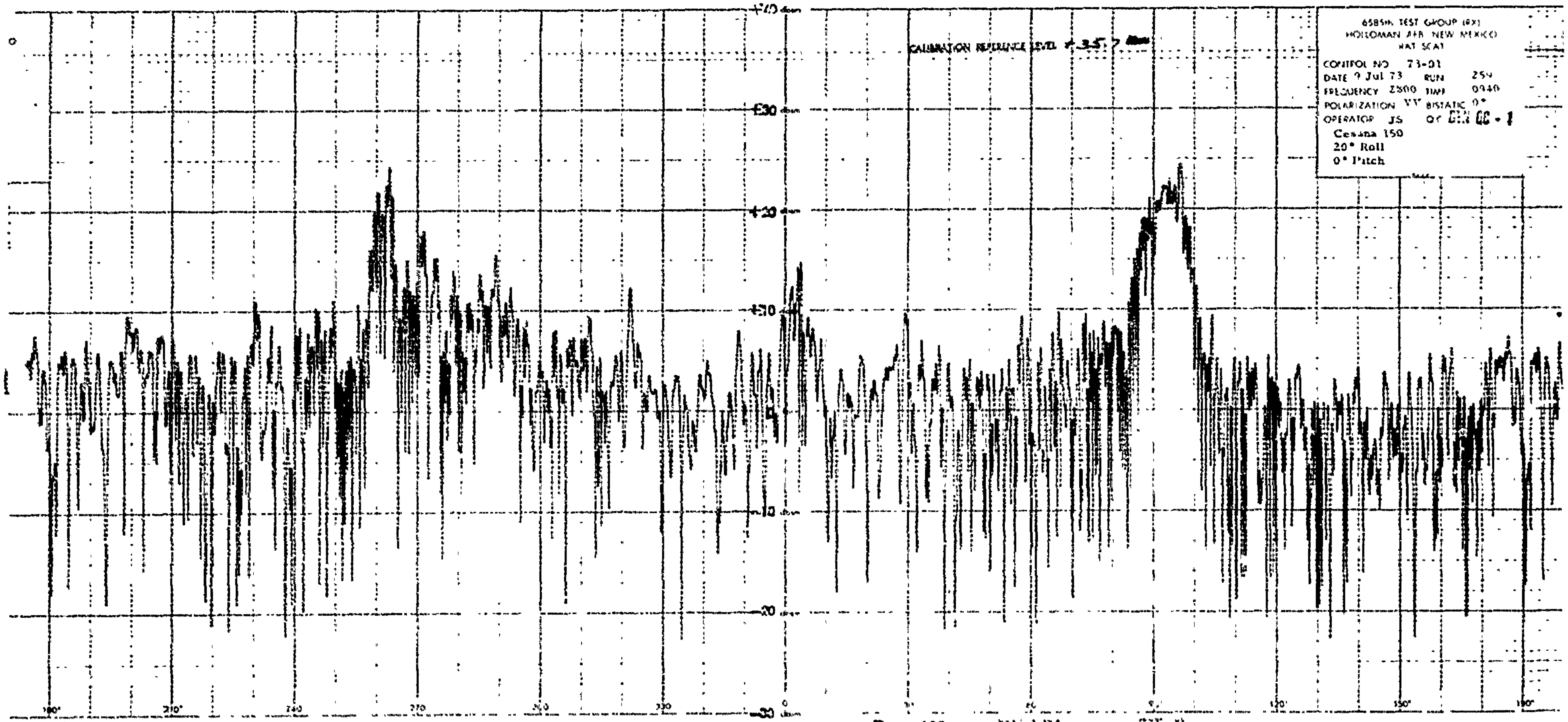


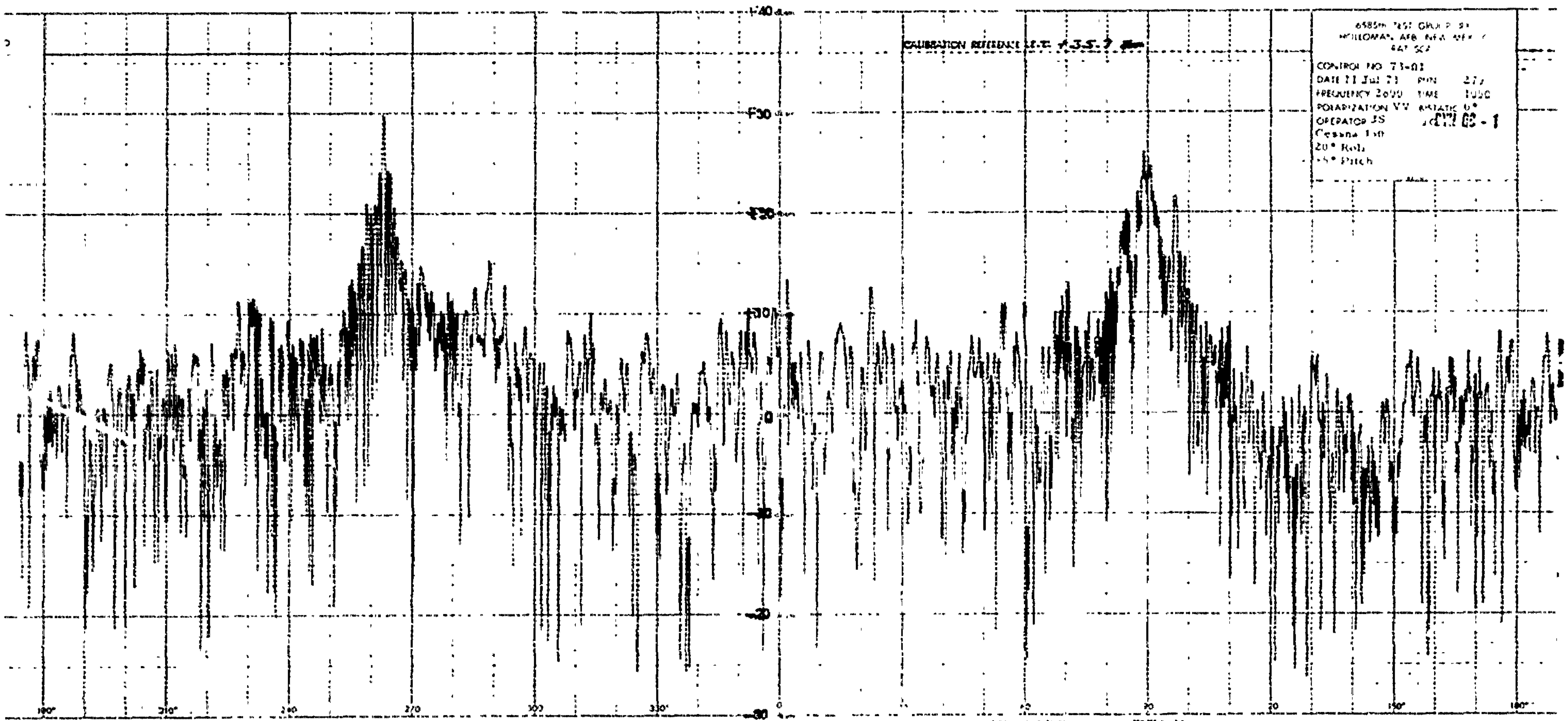
+40
+30
+20
+10
0
-10
-20
-30
DYN SC - 1


+40
+30
+20
+10
0
-10
-20
-30

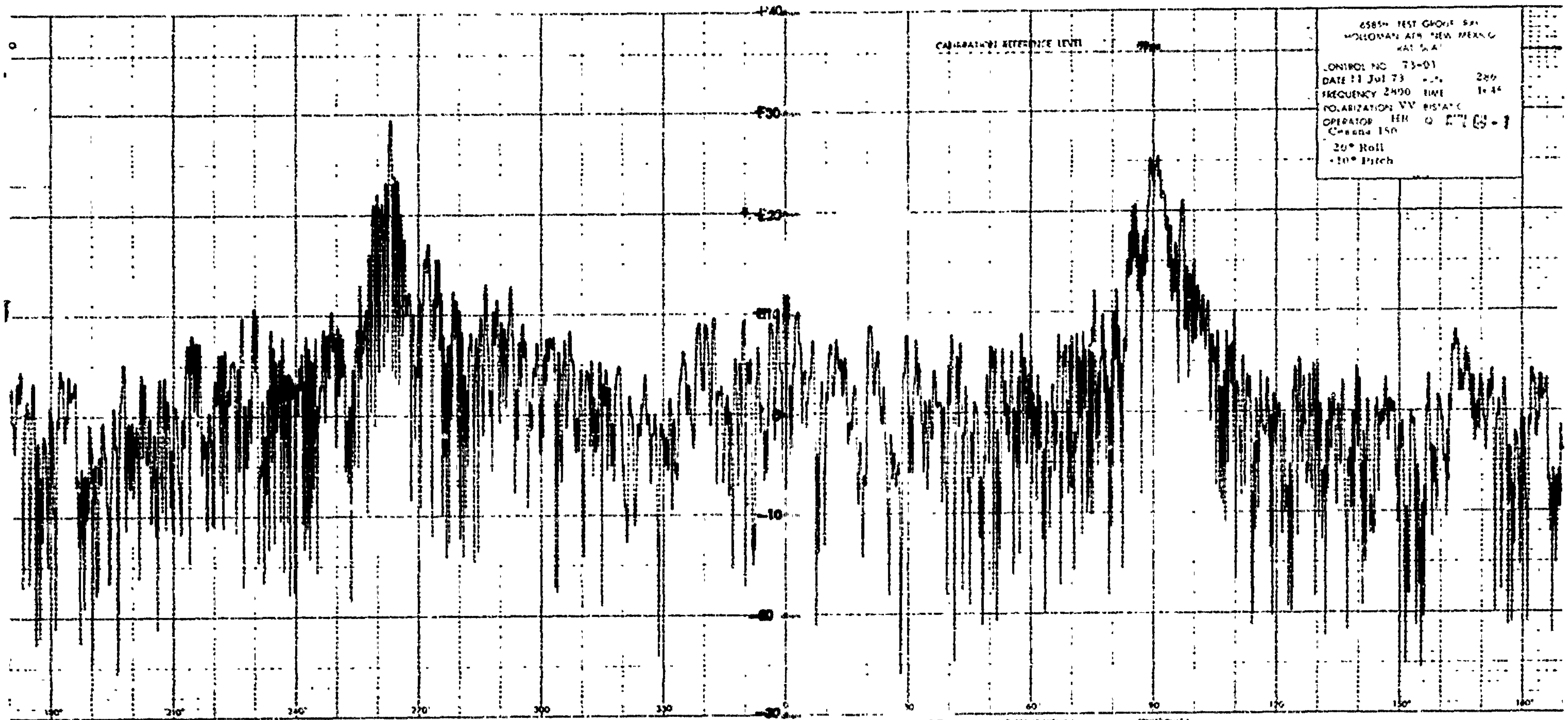


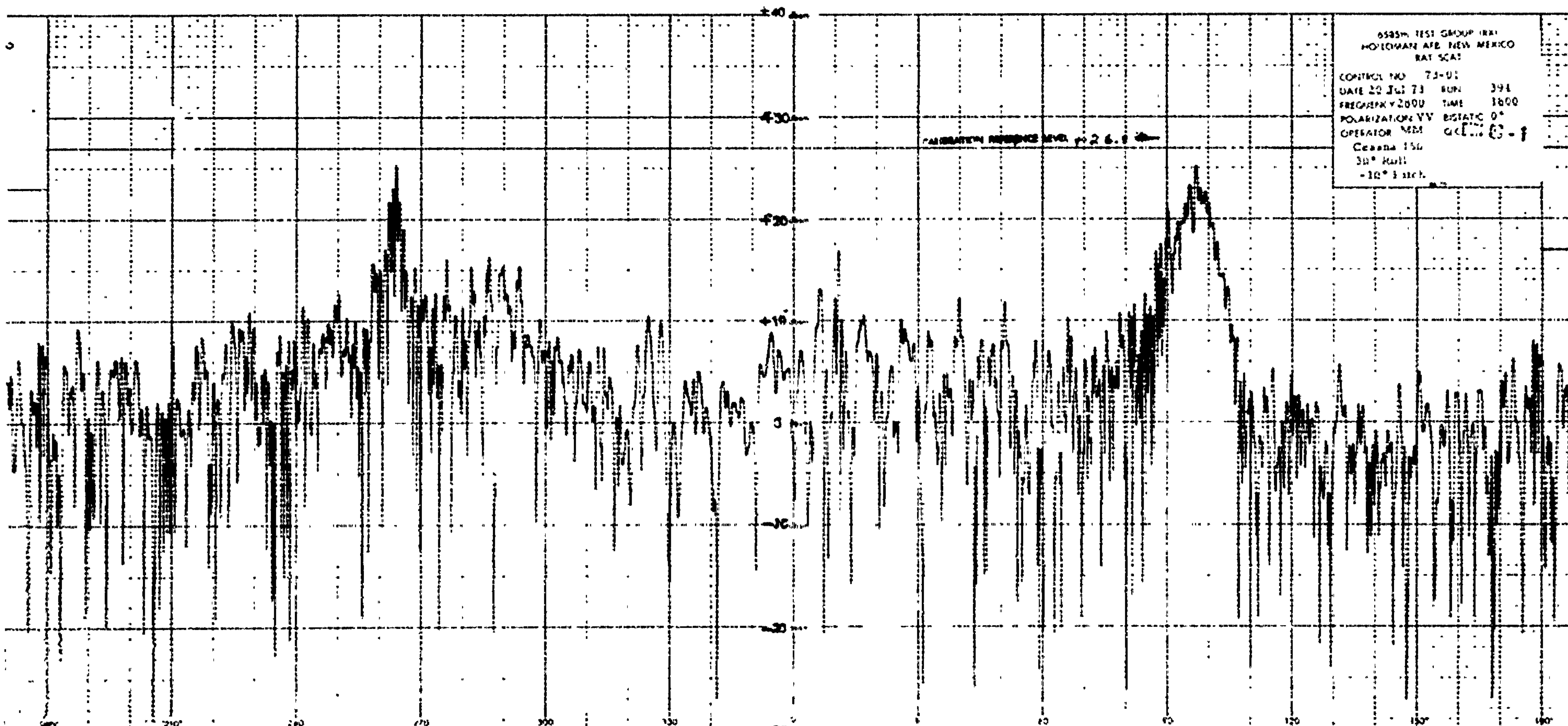


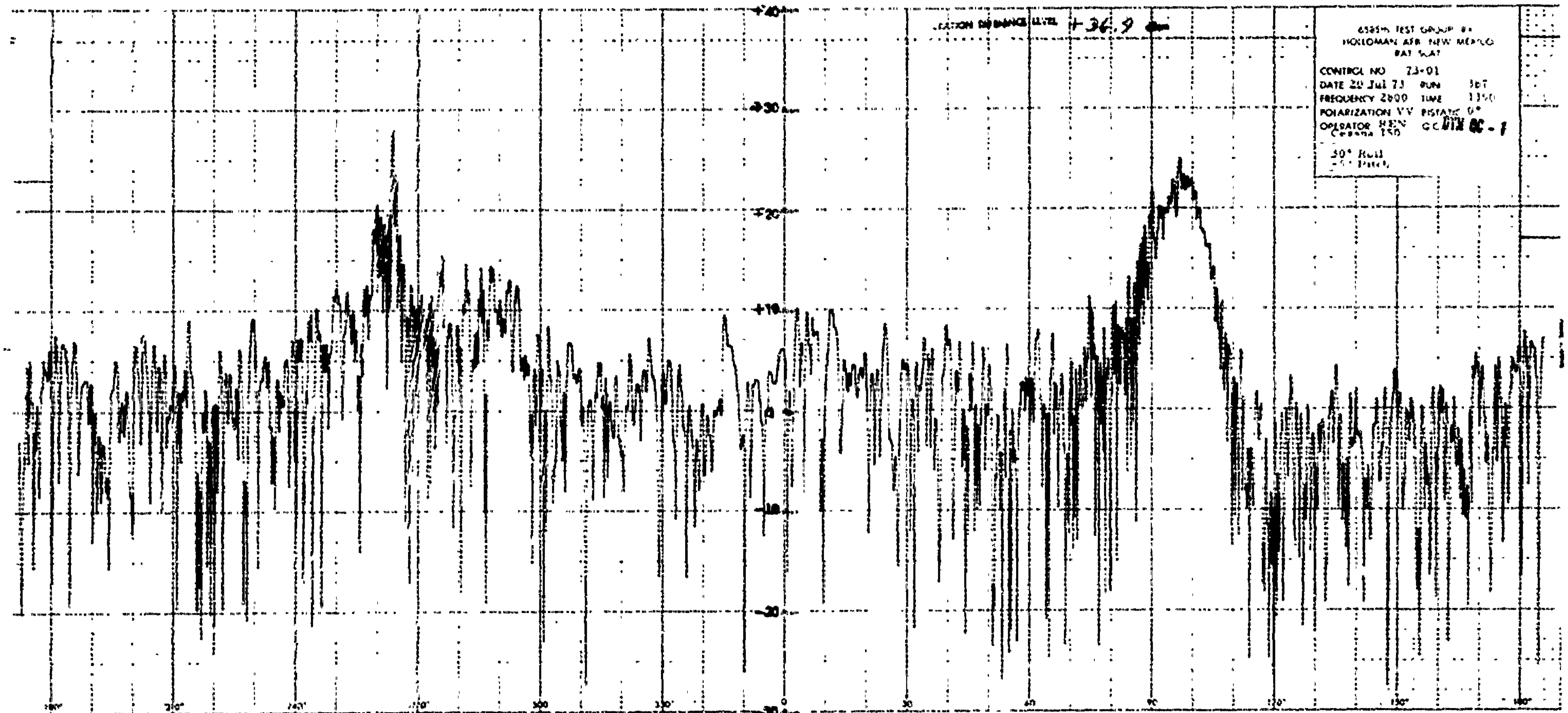

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 9 Jul 73 RUN 259
FREQUENCY 2800 TIME 0940
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+40 dbsm
+30 dbsm
+20 dbsm
+10 dbsm
0
-10 dbsm
-20
-30 dbsm
180°
210°
240
270
300
330
0
30
60
90
120°
150°
180°

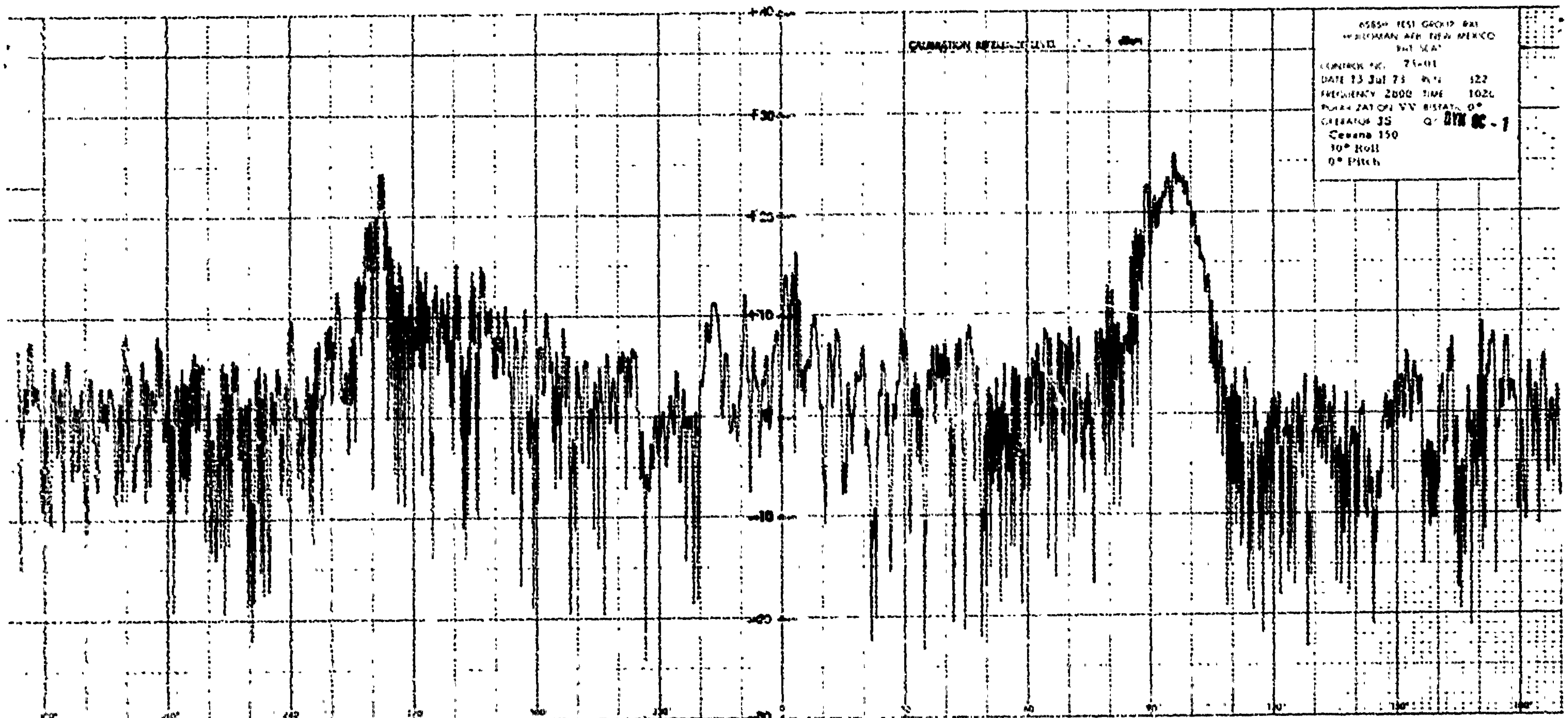


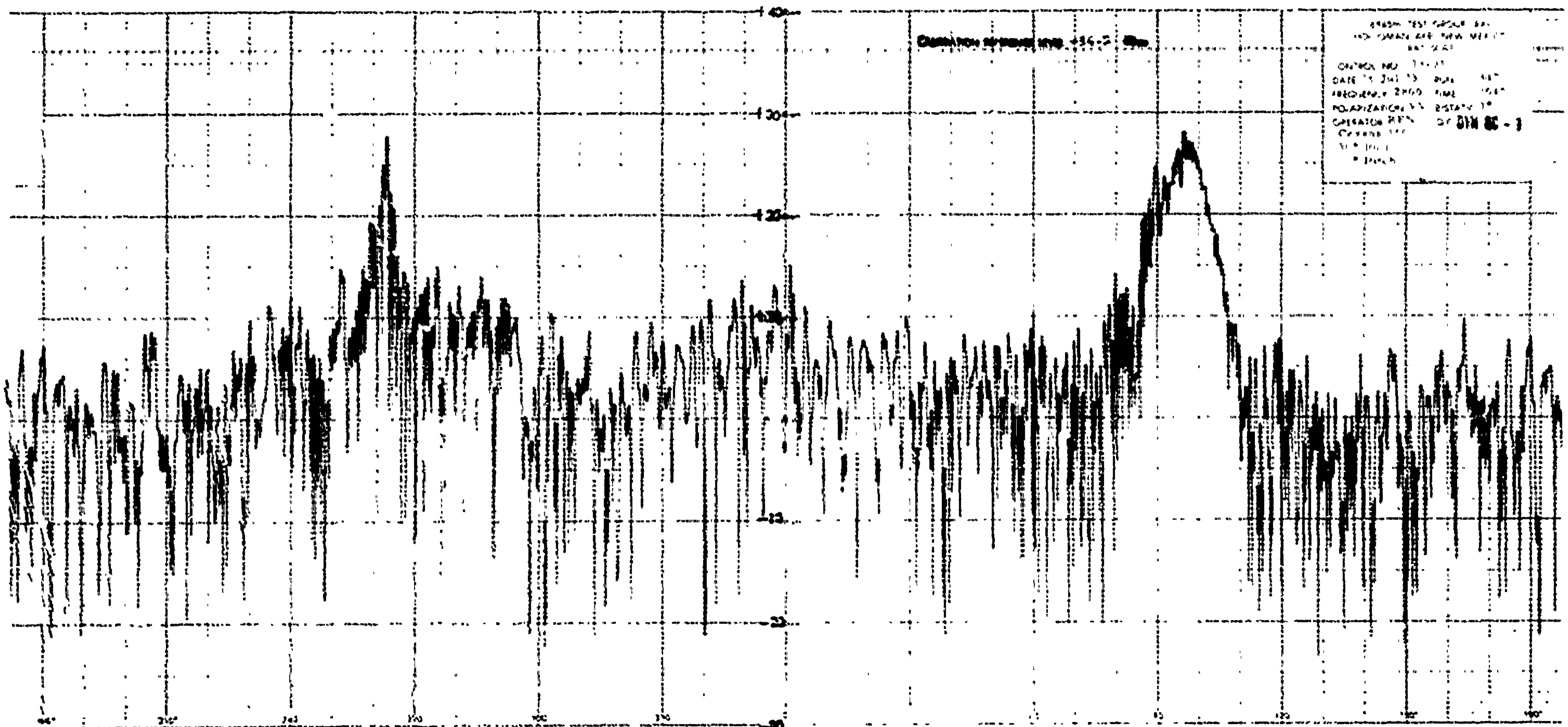
CALIBRATION REFERENCE +35.7 dBm
6585th TEST GROUP (R)
HOLLOMAN AFB NEW MEXICO
RAT SCF
CONTROL NO 73-01
DATE 21 Jul 73
FREQUENCY 2000
POLARIZATION VV BISTATIC 0°
OPERATOR JS
20° Roll
+40 dBm
+30 dBm
+20
+10
0
-10
-20
-30
180°
210°
240
270
300
330°
0
30
60
90
120
150°
180°

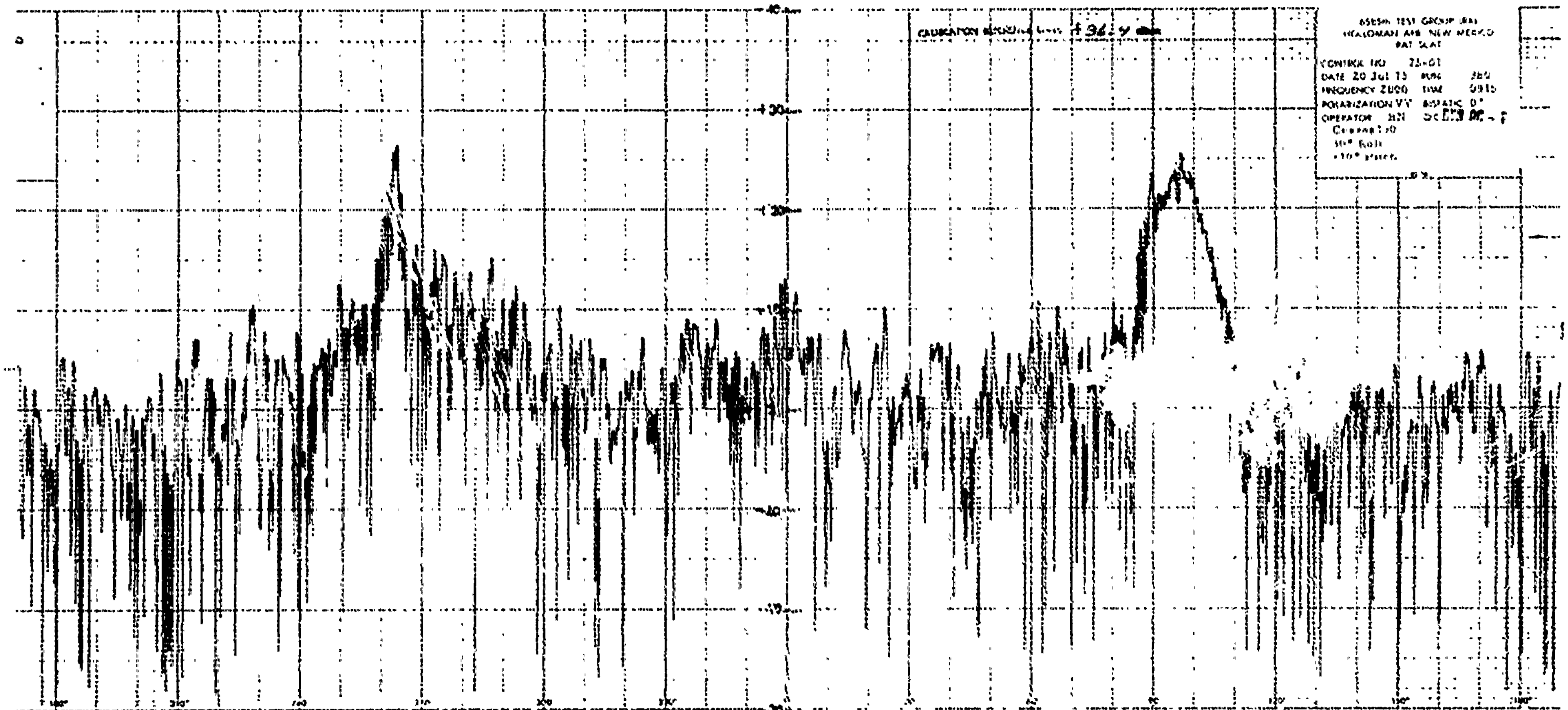

CALIBRATION REFERENCE LEVEL
6585th TEST GROUP
HOLLOMAN AFB NEW MEXICO
CONTROL NO 73-01
DATE 11 Jul 73
FREQUENCY 2890
POLARIZATION VV BISTATIC
OPERATOR
Cessna 150
20° Roll
+10° Pitch
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300
330
0
30
60°
90
120
150°
180°


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 394
FREQUENCY 2000 TIME 1600
POLARIZATION VV BISTATIC 0°
OPERATOR MM
Cessna 150
30° Roll
-10° Pitch
CALIBRATION REFERENCE LEVEL +26.8 dBsm
+40
+30
+20
+10
0
-10
-20
-30
210°
240
270
300
330
0
30
60
90
120
150°
180°

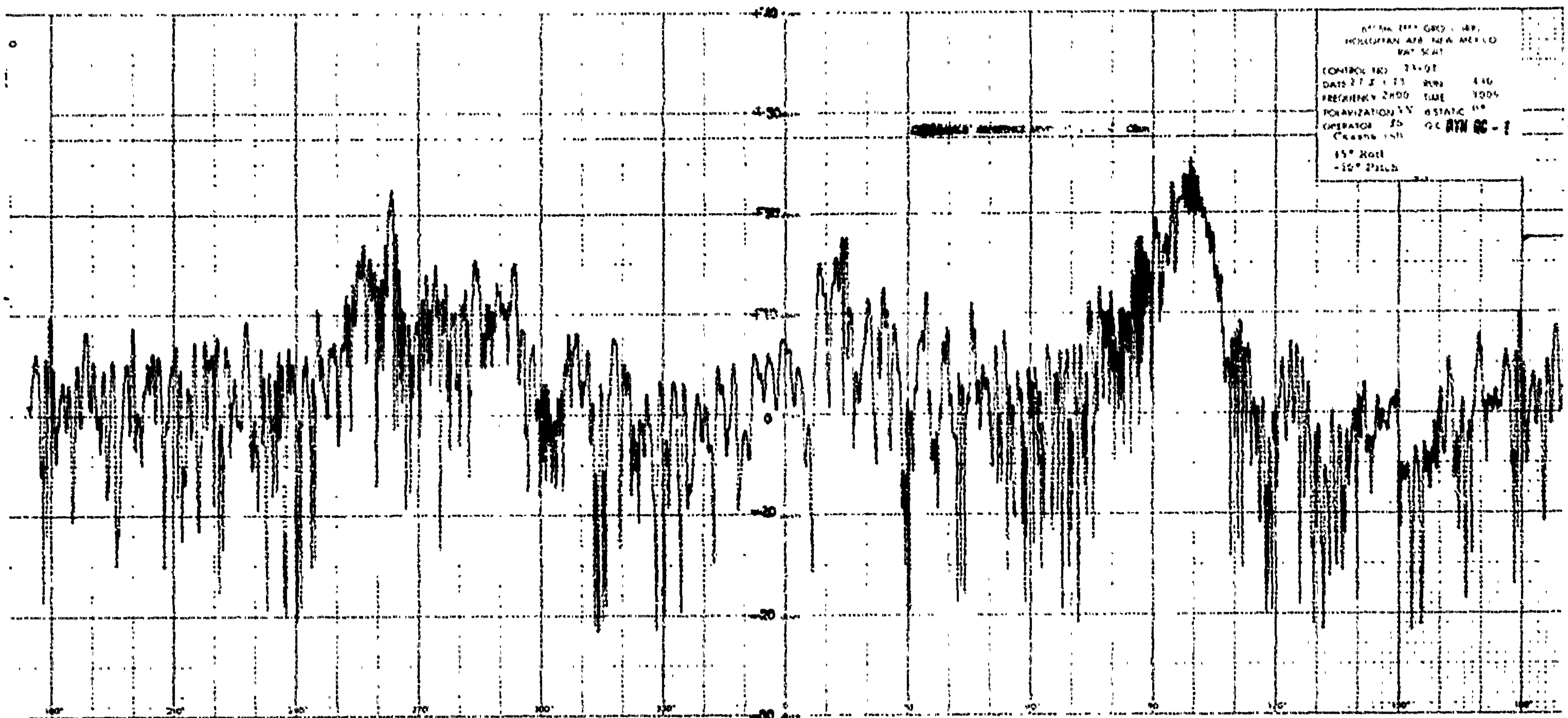

6585th TEST GROUP
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 367
FREQUENCY 2800 TIME 1350
POLARIZATION VV BISTATIC 0°
OPERATOR HEN GC
Cessna 150
30° Roll
+36.9
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300
330°
0
30
60
90
120°
150°
180°


CALIBRATION REFERENCE LEVEL
CONTROL NO. 75-01
DATE 13 Jul 73
322
FREQUENCY 2000 TIME 1026
POLARIZATION VV BISTATIC 0°
CYLINDER 35
Cessna 150
30° Roll
0° Pitch
+40
+30
+20
+10
-10
-20
-30

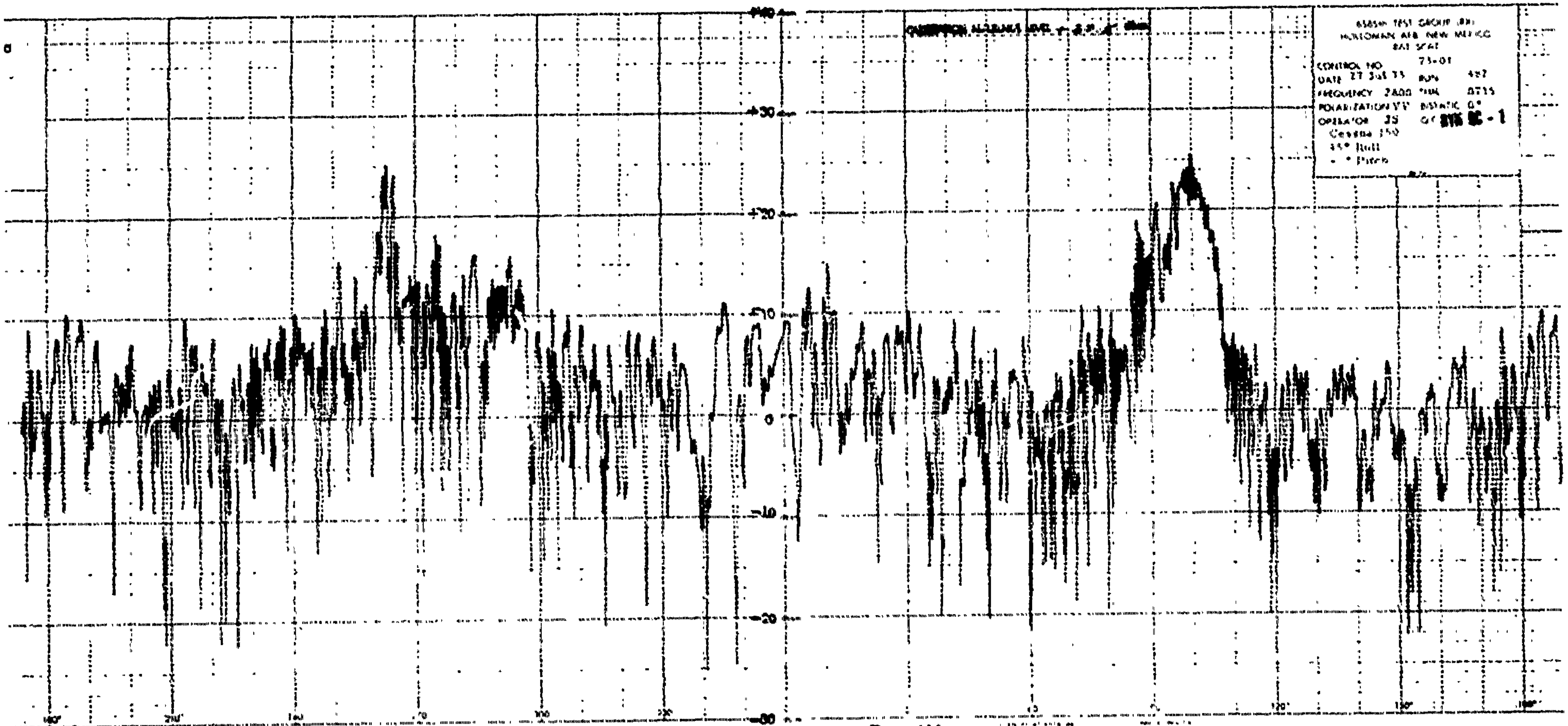


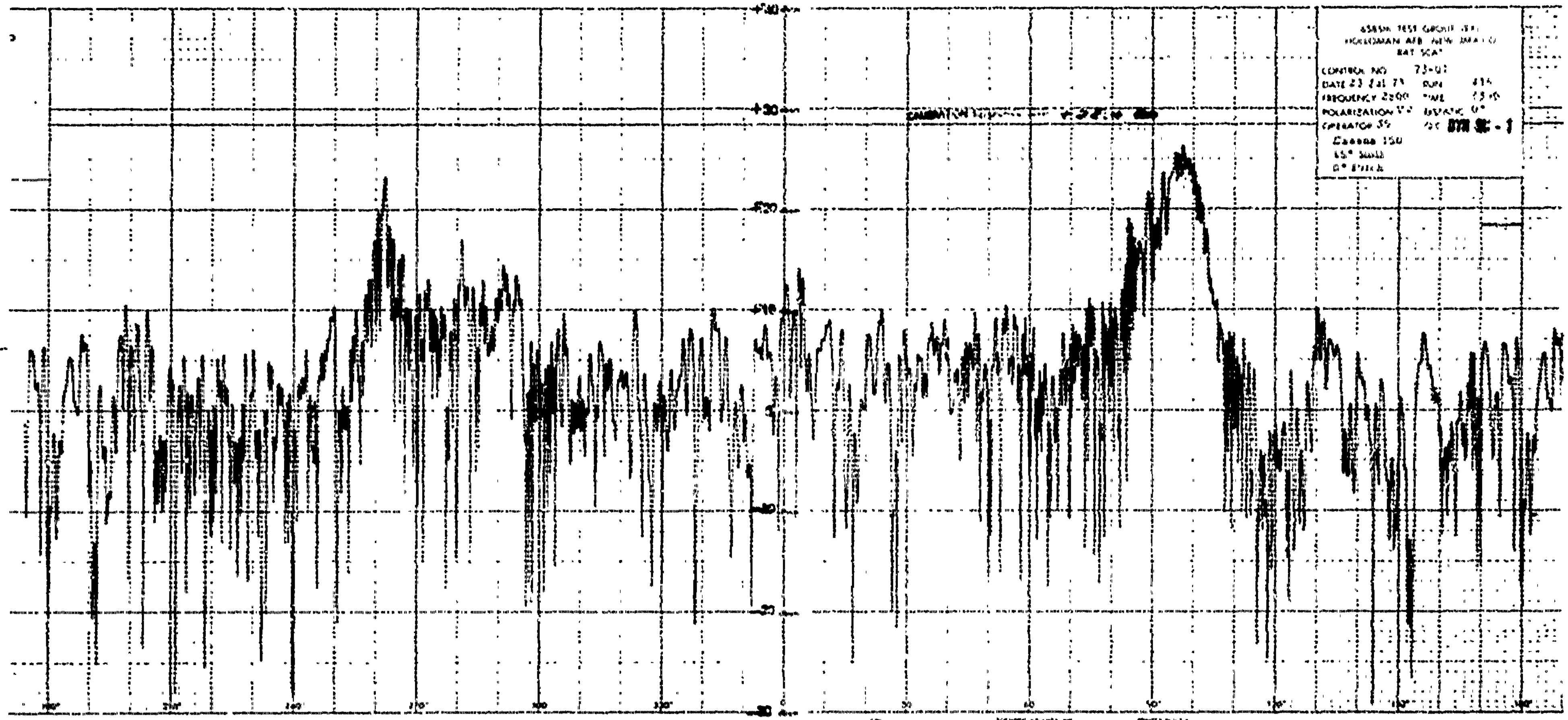


HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73
FREQUENCY 2000
TIME 0915
POLARIZATION VV
BISTATIC 0°
+30
+20
+10
0
-10
-20
-30
-40

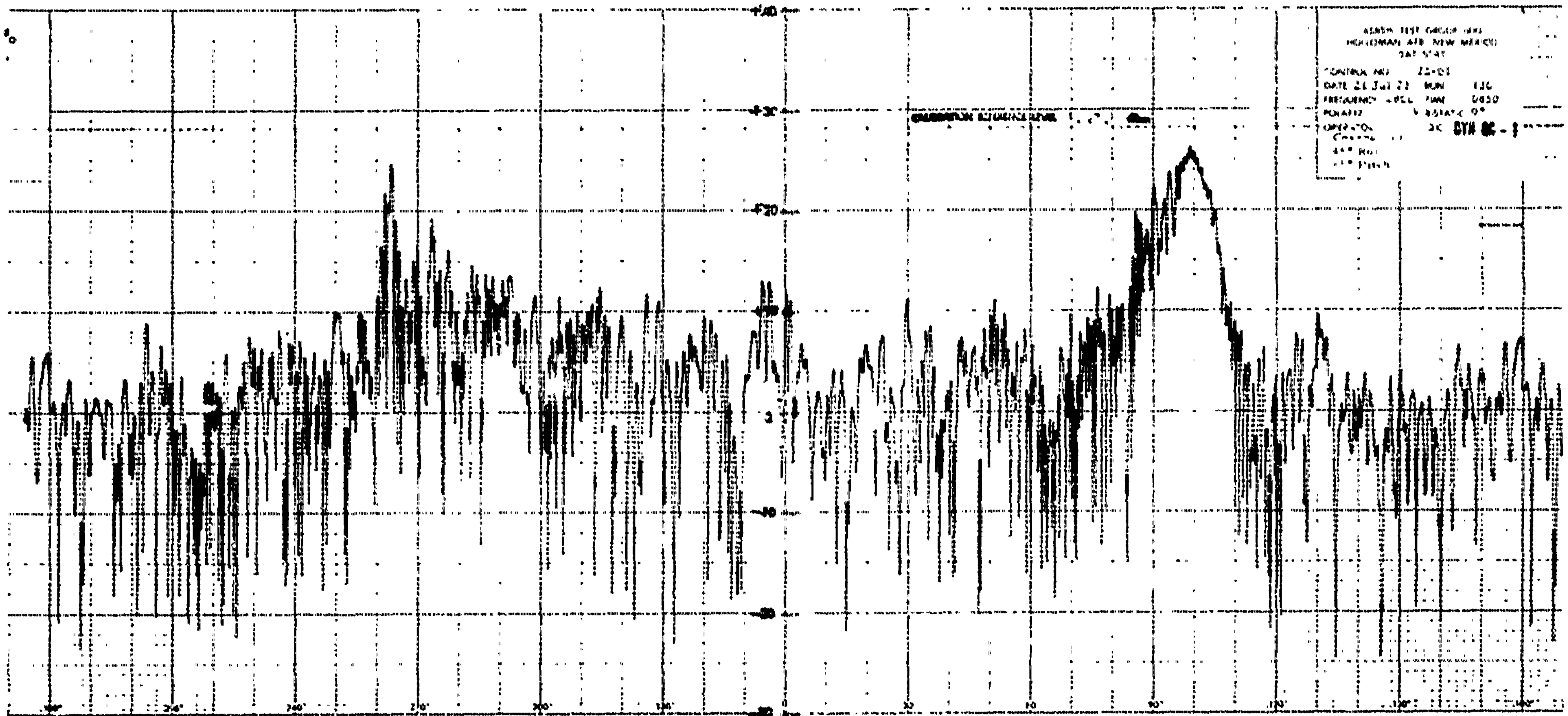


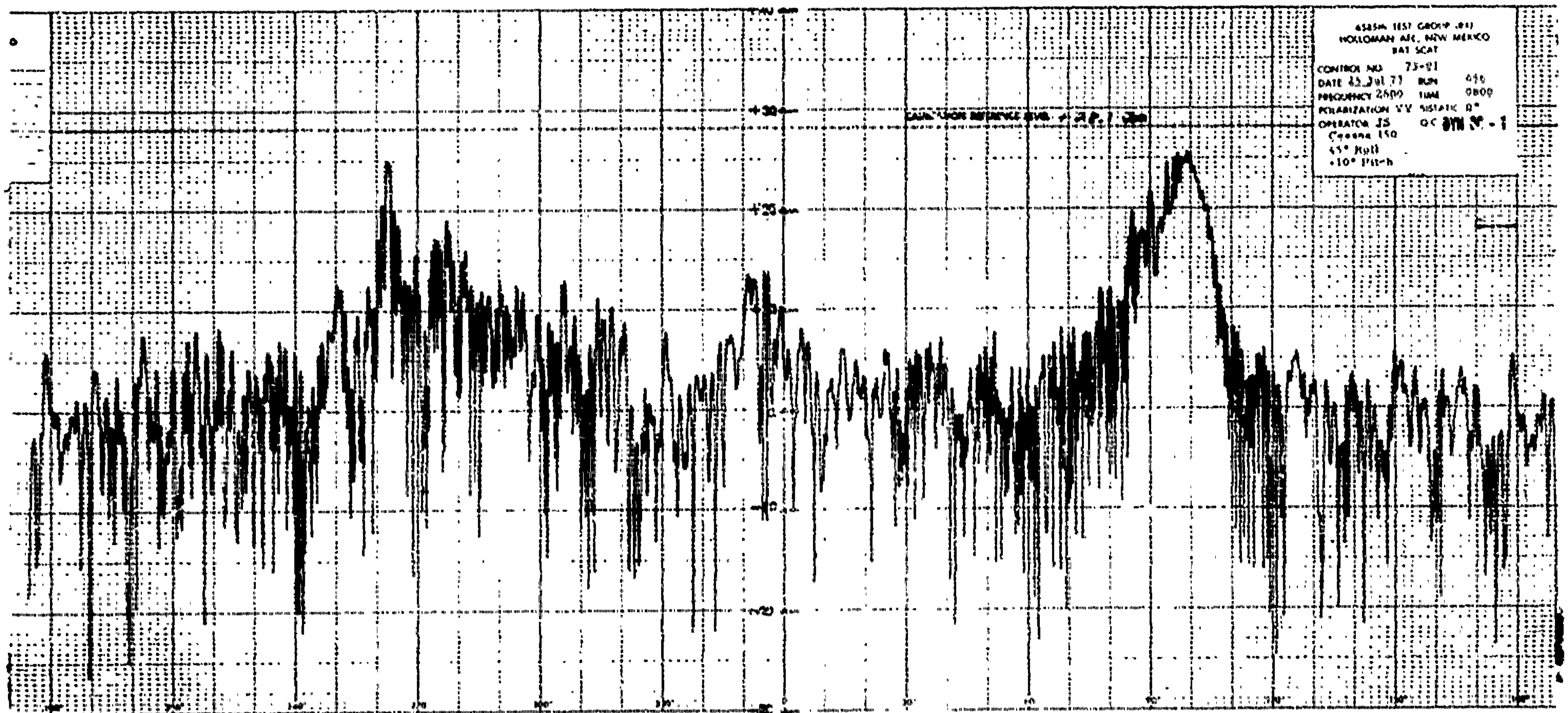
CONTROL NO
DATE
FREQUENCY 2800
TIME
POLARIZATION
STATIC
OPERATOR
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300°
330°
0
30
60°
90
120°
150°
180°

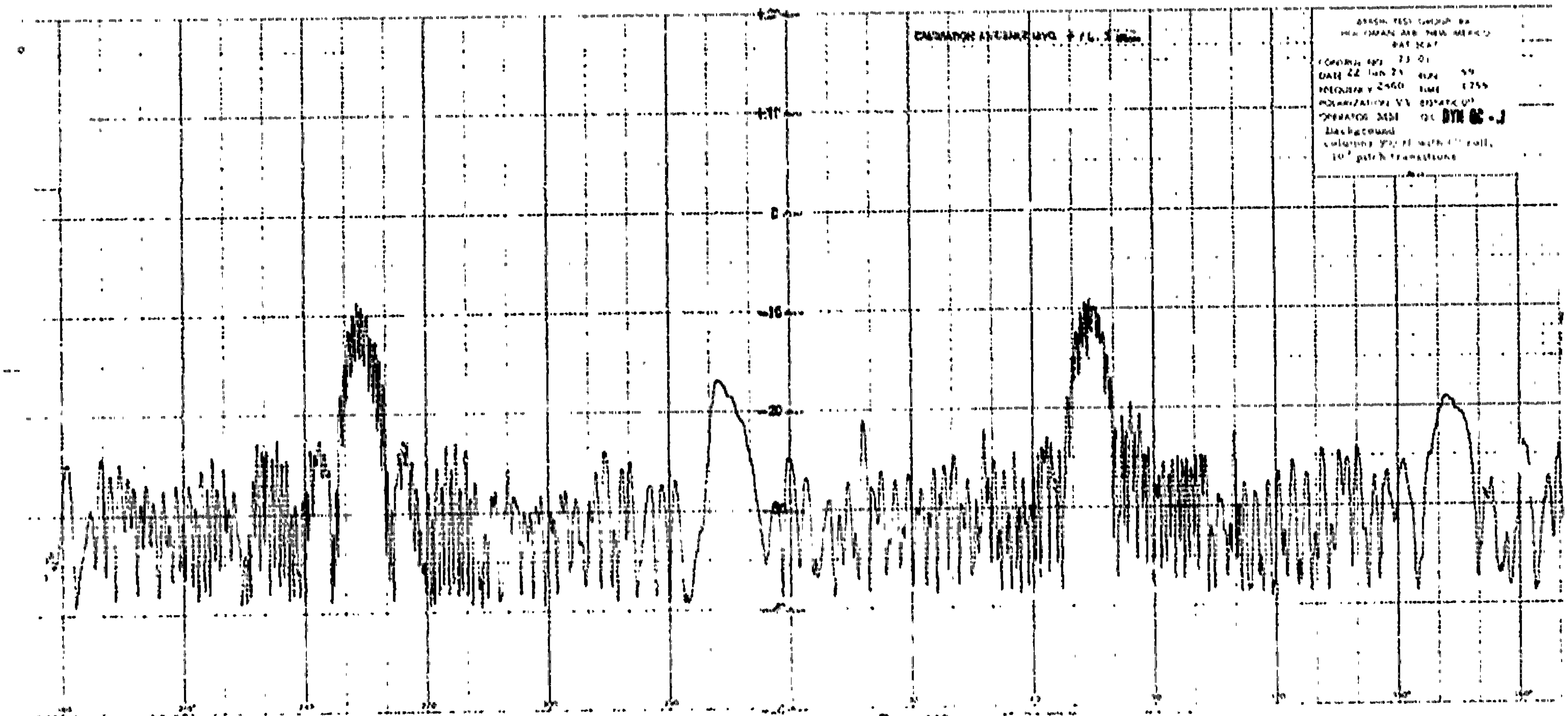

CONTROL NO 73-01
DATE
FREQUENCY
POLARIZATION
OPERATOR
Roll
Pitch
+30
+20
+10
0
-10
-20

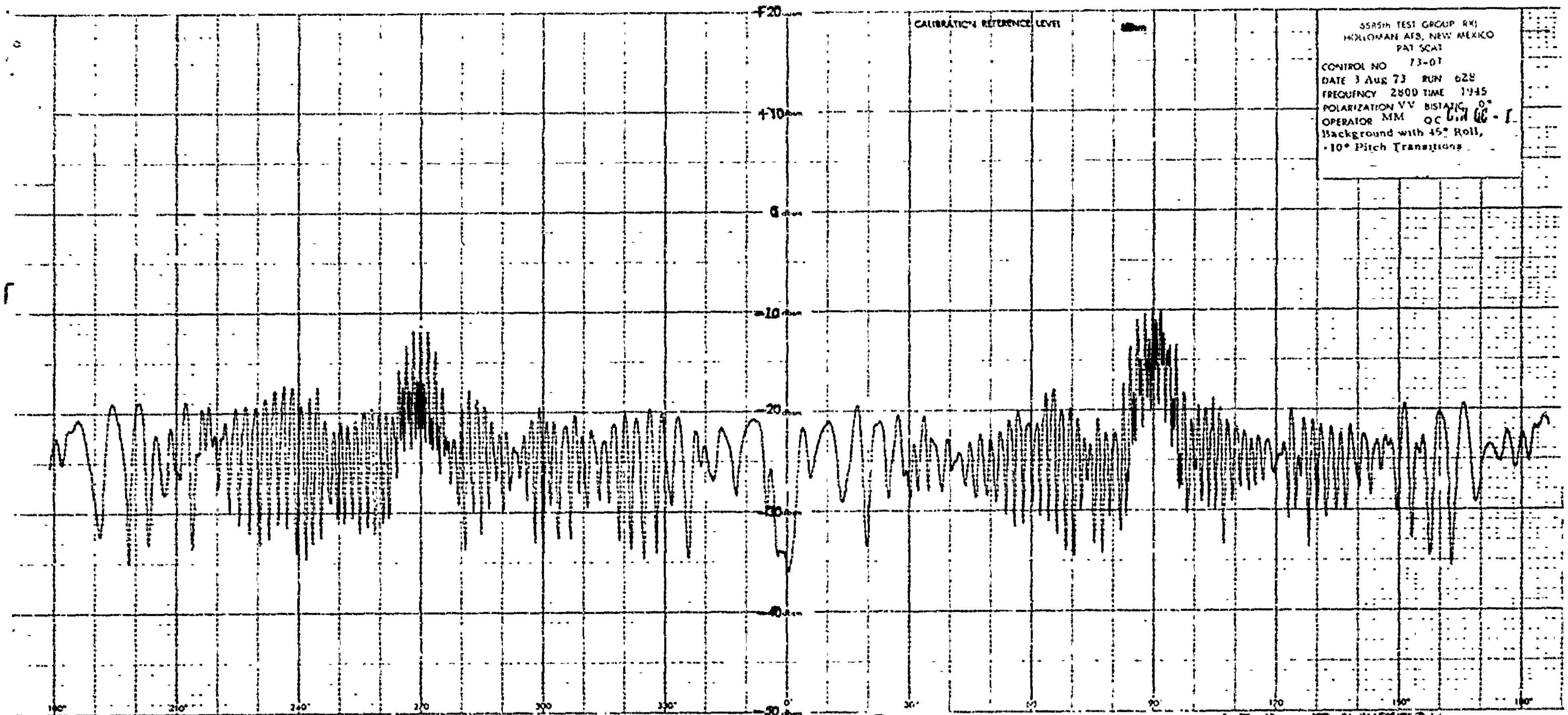


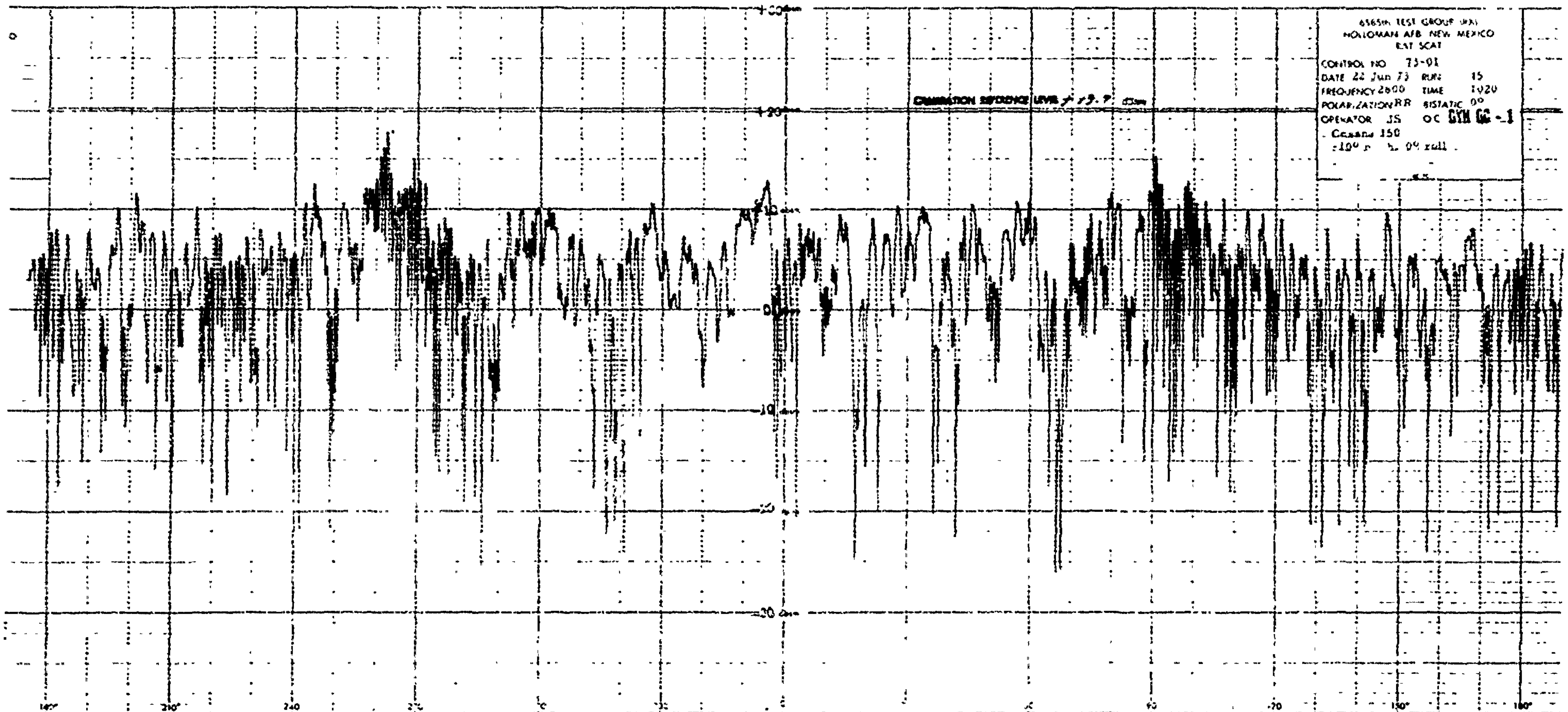
HOLLOMAN AFB, NEW MEXICO
CONTROL NO
FREQUENCY
POLARIZATION
OPERATOR
Cessna 150
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300°
330°
0
30
60
90°
120°
150°
180°

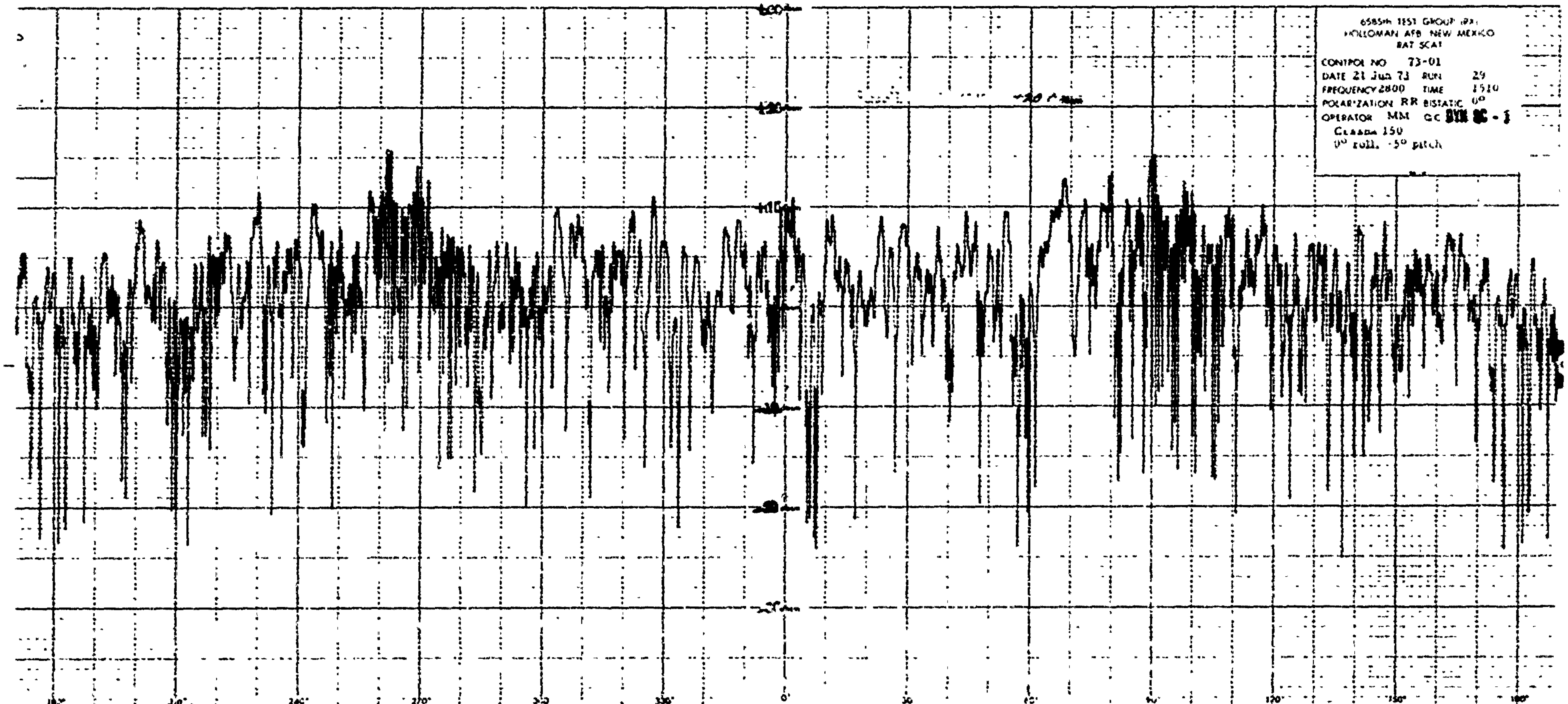


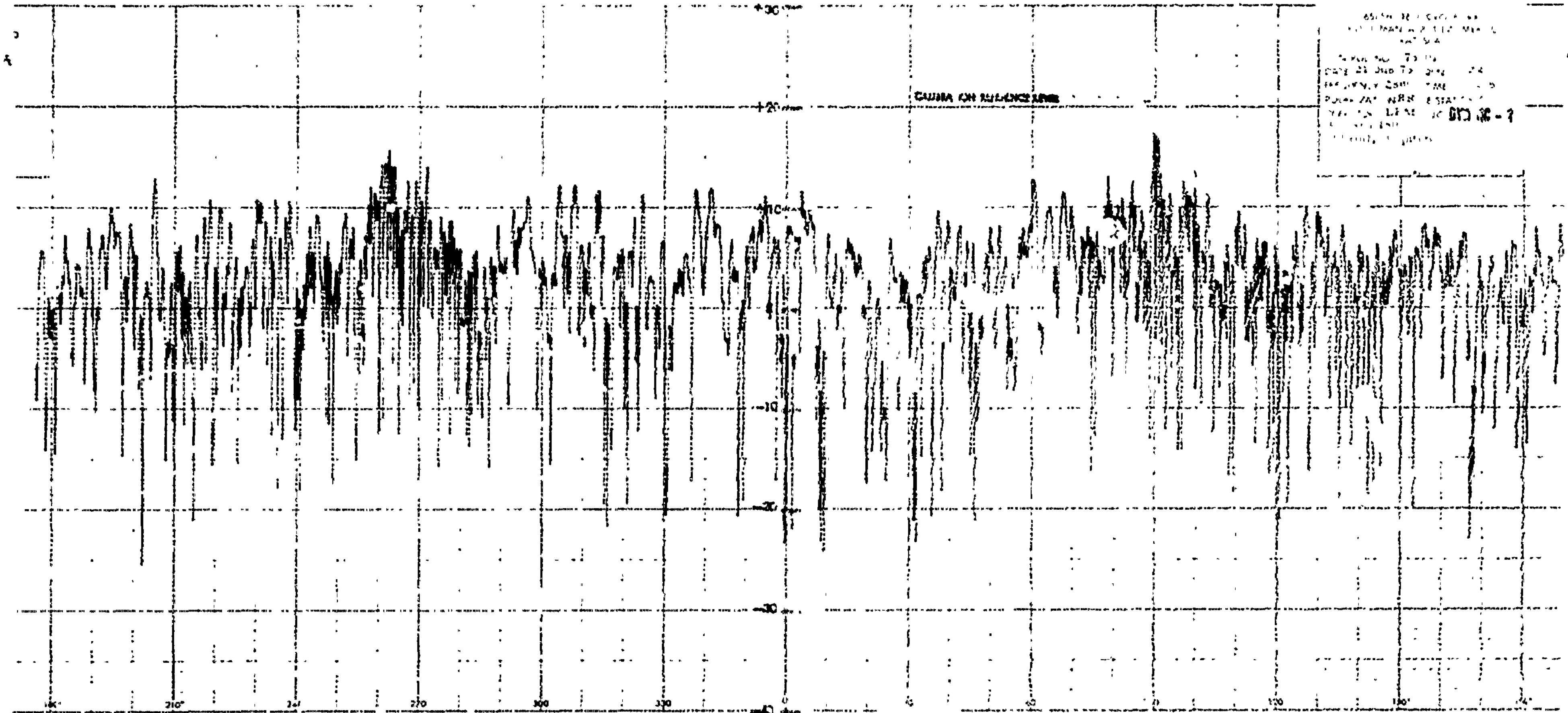

HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-21
FREQUENCY 2600
TIME 0800
POLARIZATION VV
BISTATIC 0°
OPERATOR JS
Cessna 150
+10° Pitch
+30
+25
+10
+20
0
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

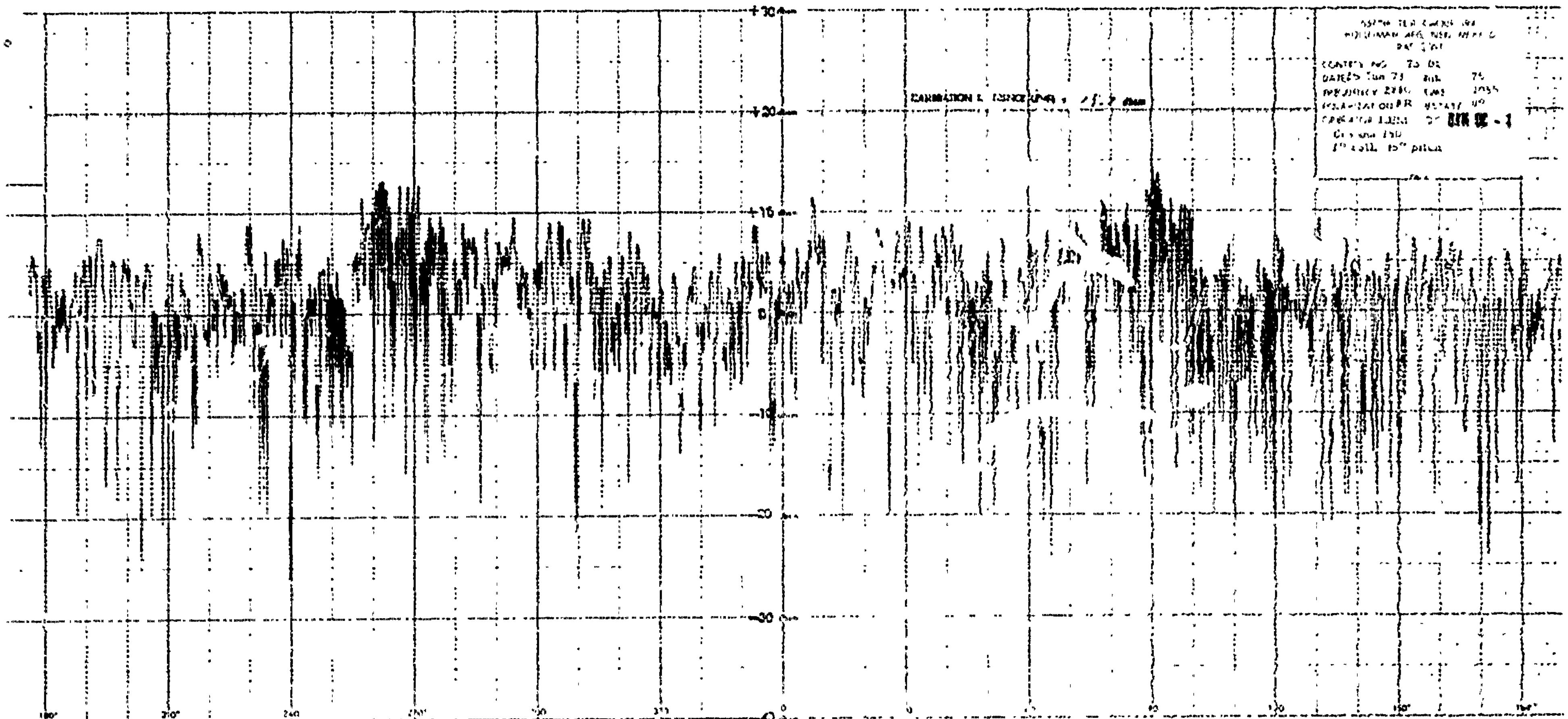


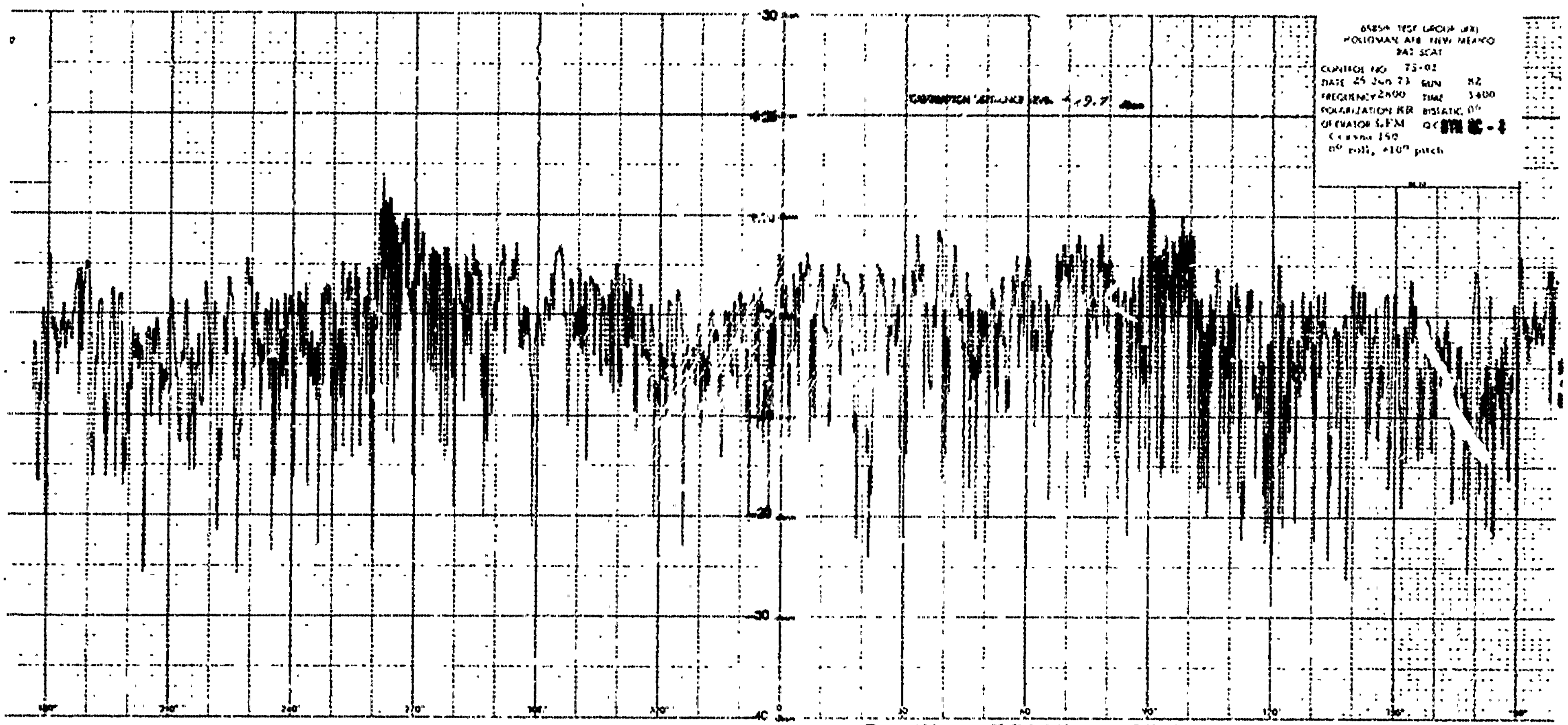

5585th TEST GROUP RXI
HOLLOMAN AFB, NEW MEXICO
PAT SCAT
CONTROL NO 73-07
DATE 3 Aug 73 RUN 628
FREQUENCY 2800 TIME 1945
POLARIZATION VV BISTATIC 0°
OPERATOR MM QC
Background with 45° Roll,
-10° Pitch Transitions
CALIBRATION REFERENCE LEVEL
+20
+10
0
-10
-20
-30
-40
-50
180°
210°
240°
270
300
330°
0°
30°
60
90°
120
150°
180°

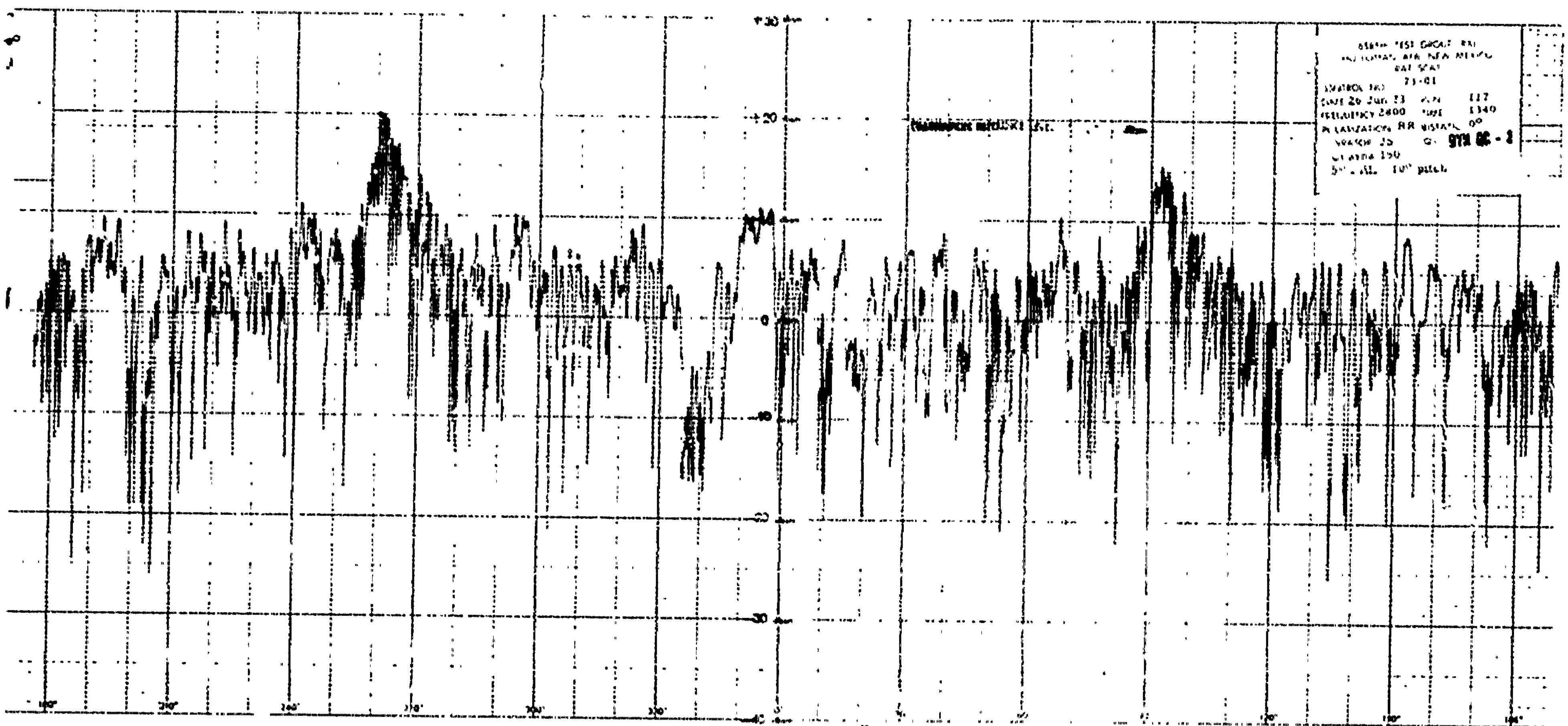

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-91
DATE 22 Jun 73 RUN 15
FREQUENCY 2600 TIME 1020
POLARIZATION RR BISTATIC 0°
OPERATOR JS OC GYM GC-1
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-30
180°
210°
240
270
90
150°
180°

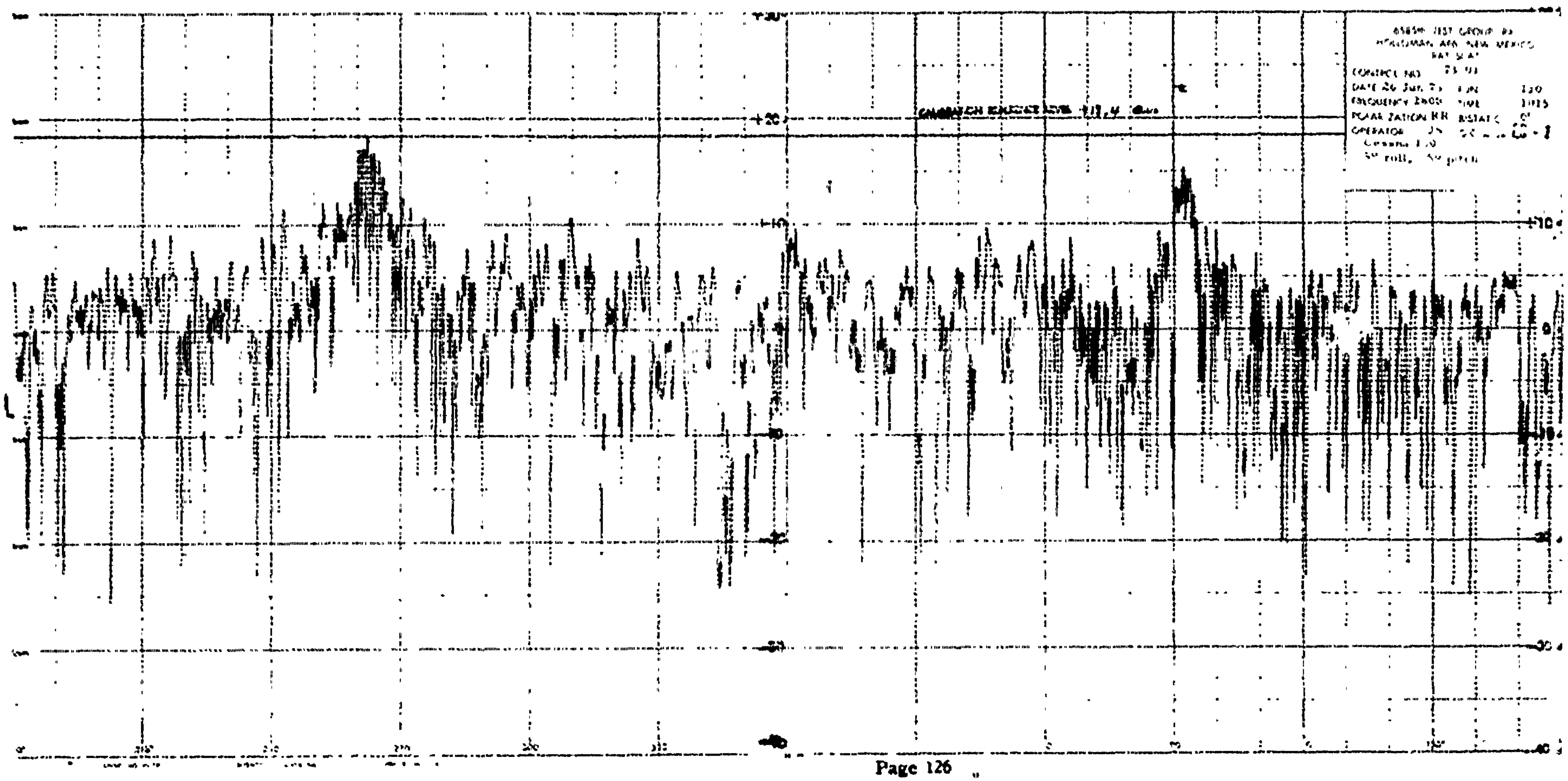

6585th TEST GROUP (PX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 21 Jun 73 RUN 29
FREQUENCY 2800 TIME 1510
POLARIZATION RR BISTATIC 0°
OPERATOR MM GC
Cessna 150
0° roll, -5° pitch
180°
210°
240°
270°
300°
330°
0°
30
60°
90°
120°
150°
180°

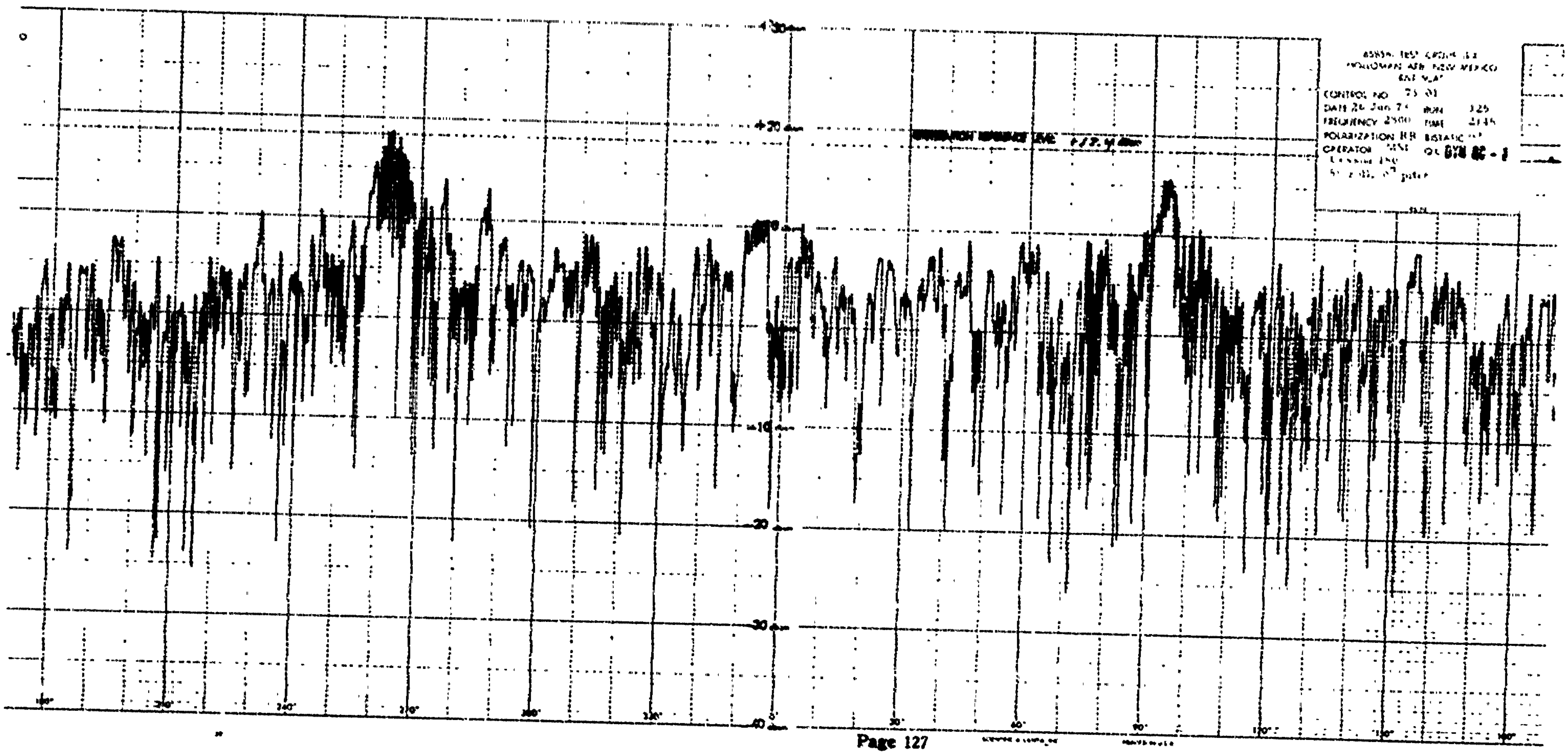

+30
+20
-10
-20
-30
210°
270
300
330
0
60
120
150°


+30 dbm
+20 dbm
+15 dbm
0
-10
-20
-30
-40
180°
210°
240
150°
CALIBRATION L

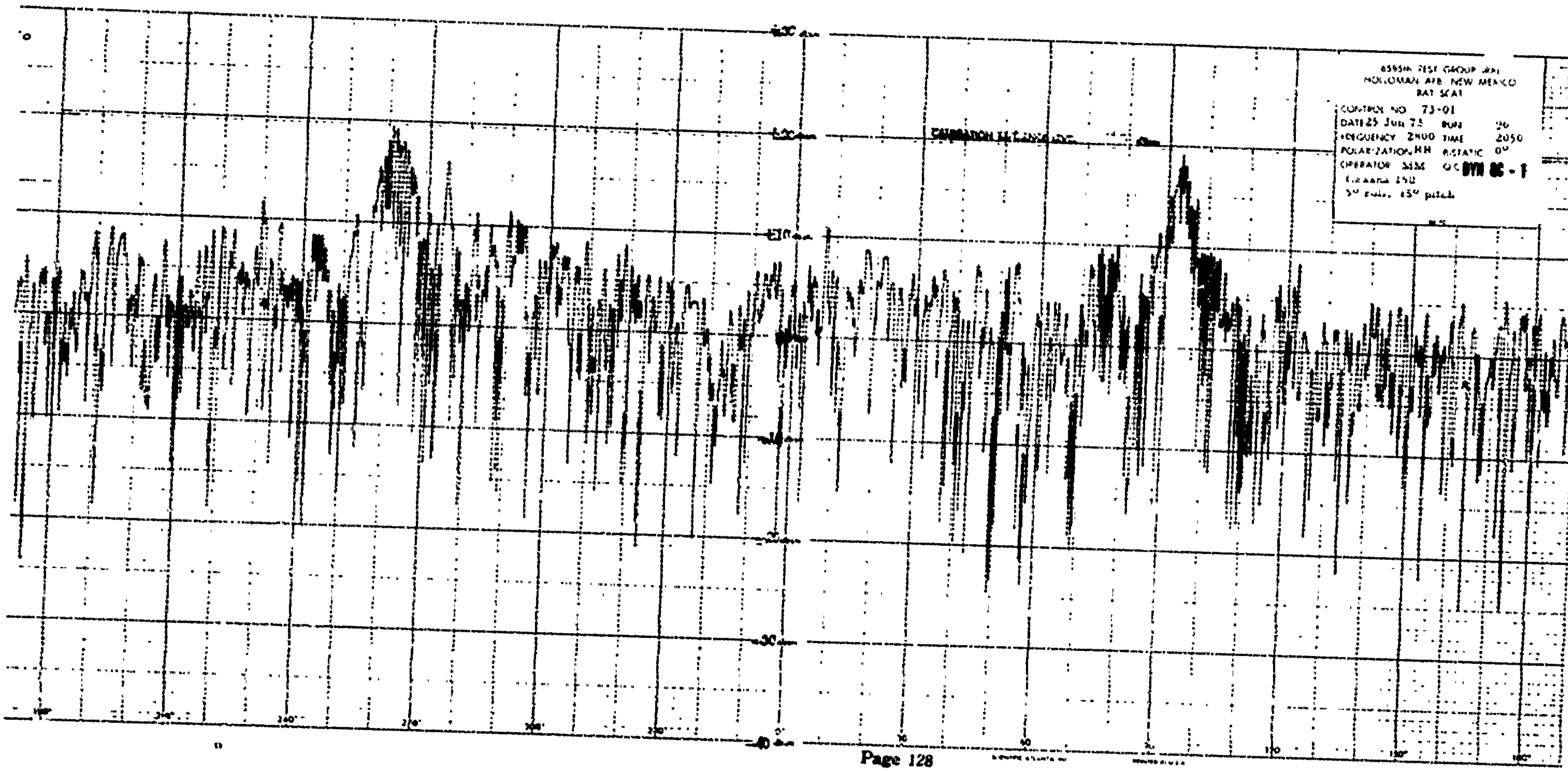

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-02
DATE 25 Jun 73
RUN 82
FREQUENCY 2600
TIME 1400
POLARIZATION RR
BISTATIC 0°
OPERATOR S.F.M
QC [illegible]
Cessna 150
0° roll, +10° pitch
CALIBRATION REFERENCE LEVEL +19.7
-30
-20
-10
0
10
20
30
40
180°
210°
240°
270°
300°
330°
0
30
60
90°
120°
150°
180°

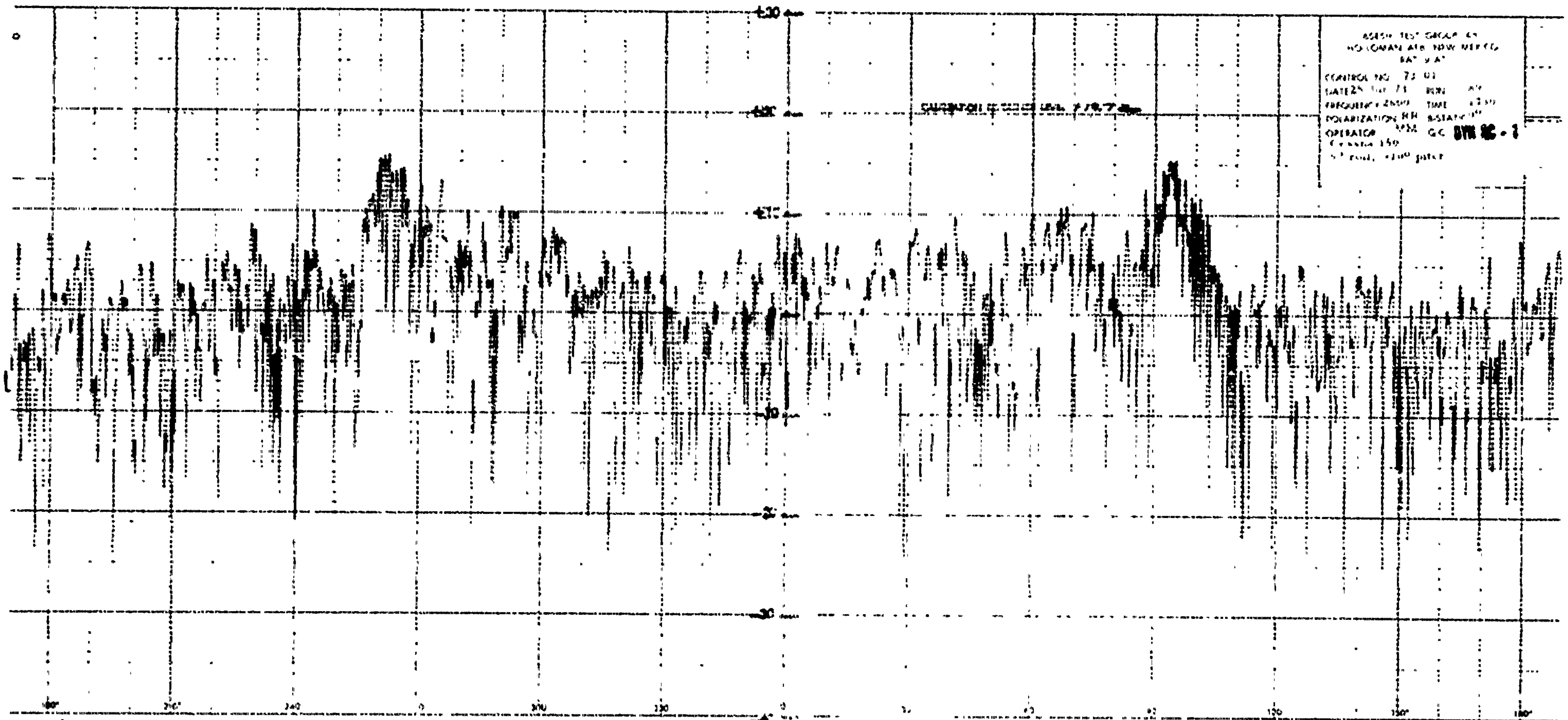

+30
+20
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
120°
150°
180°
GYN GC - 2
SWEEP RANGE 2400 MHz
5° ROLL 10° PITCH

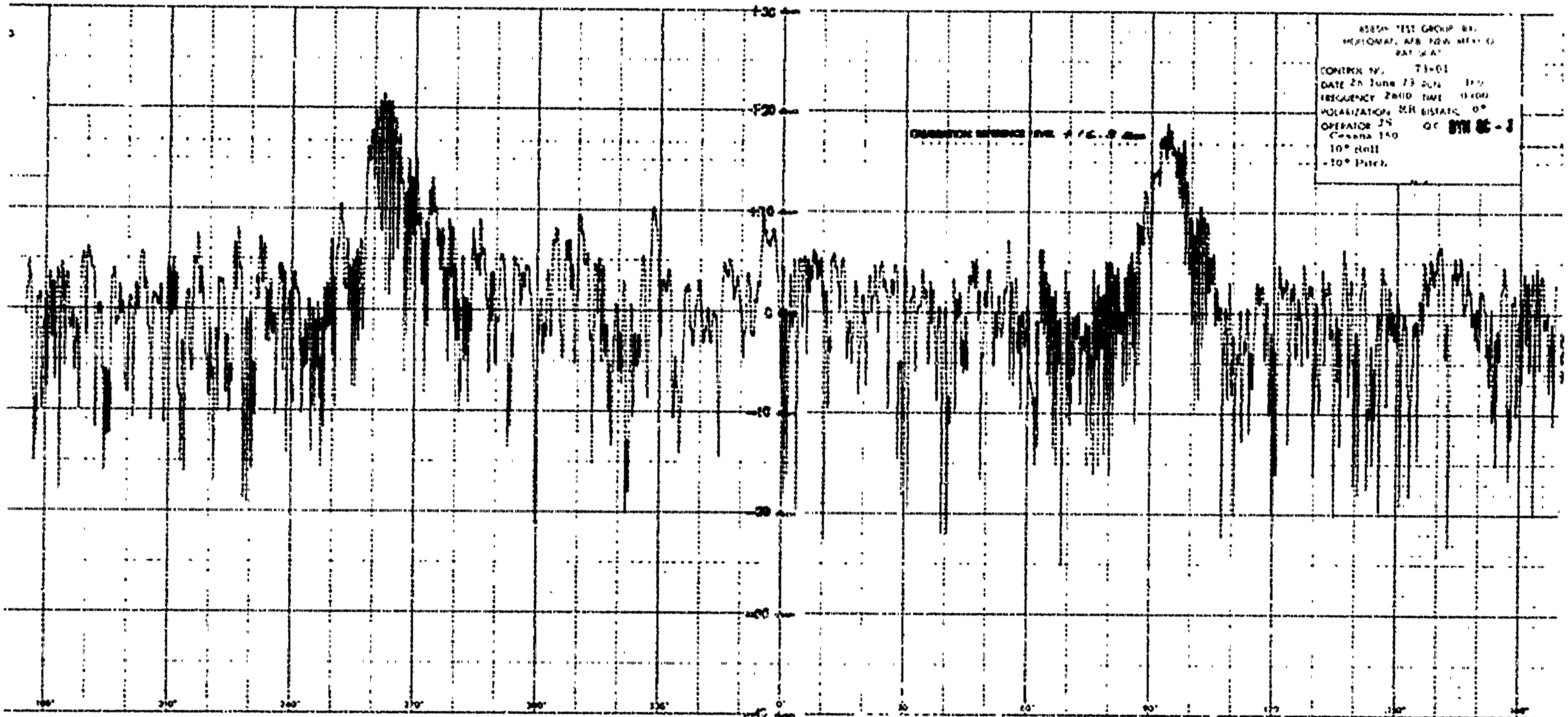

+20
+10
0
-10
-20
-30
-40



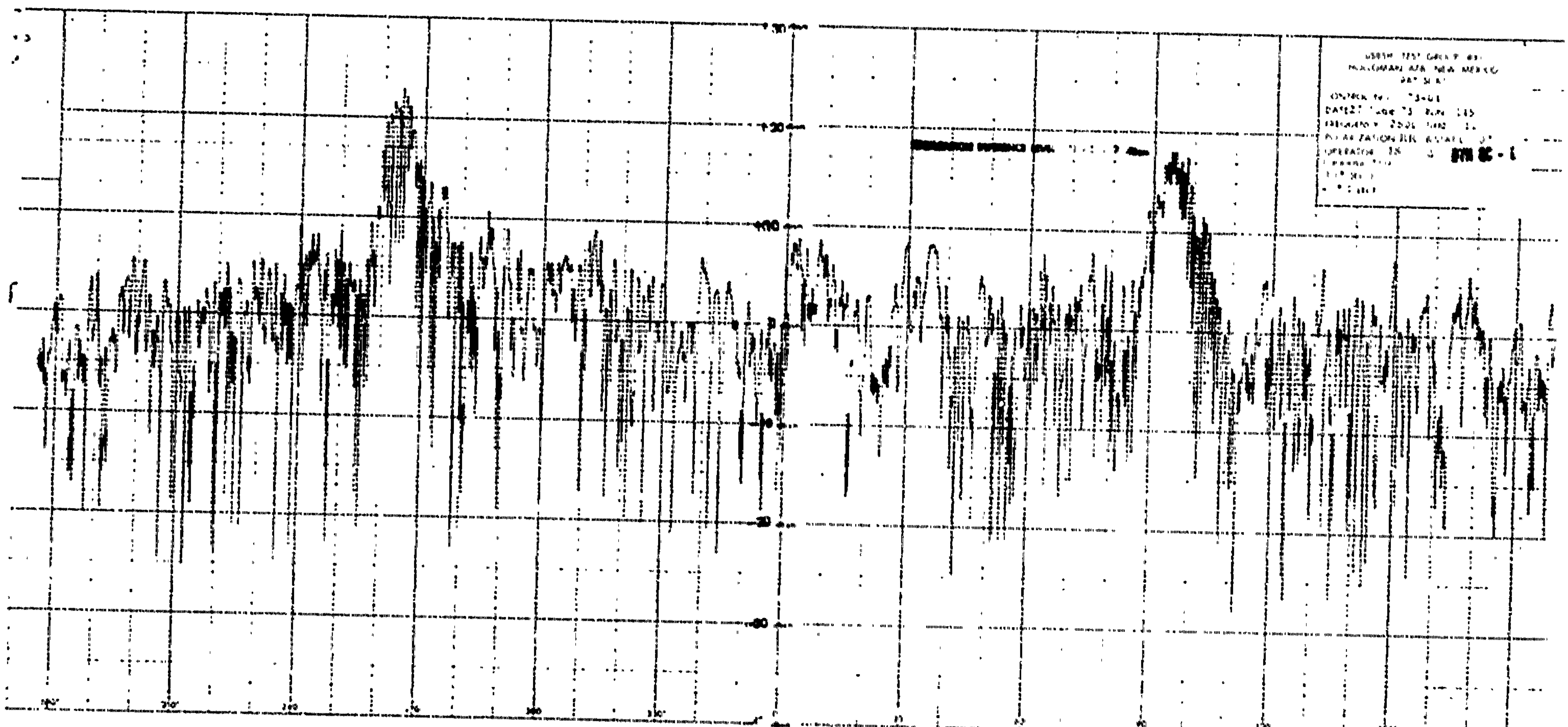
HOLLOMAN AFB NEW MEXICO
CONTROL NO
DATE
FREQUENCY 2500
POLARIZATION RR
OPERATOR
RUN 325
TIME
BISTATIC
+30
+20
+10
-10
-20
-30
-40
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

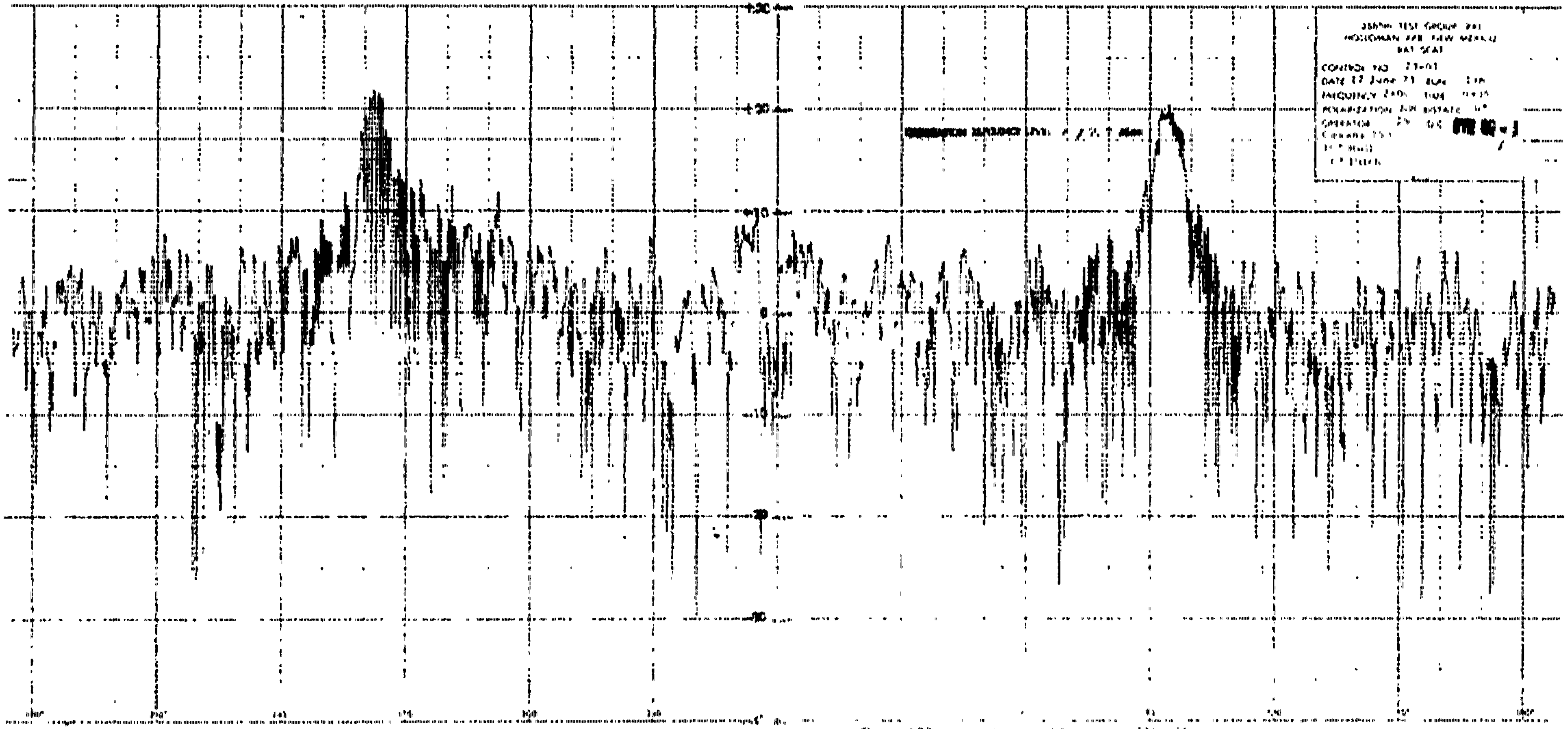

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73
RUN 26
FREQUENCY 2400
TIME 2050
POLARIZATION HH
OPERATOR
O°
DYN 8C-1
5° roll, 15° pitch
+30 dBsm
+20 dBsm
+10 dBsm
-10
-20 dBsm
-30 dBsm
-40
0°
30
60
90
120
150°
180°
210°
240°
270°
300°
330°

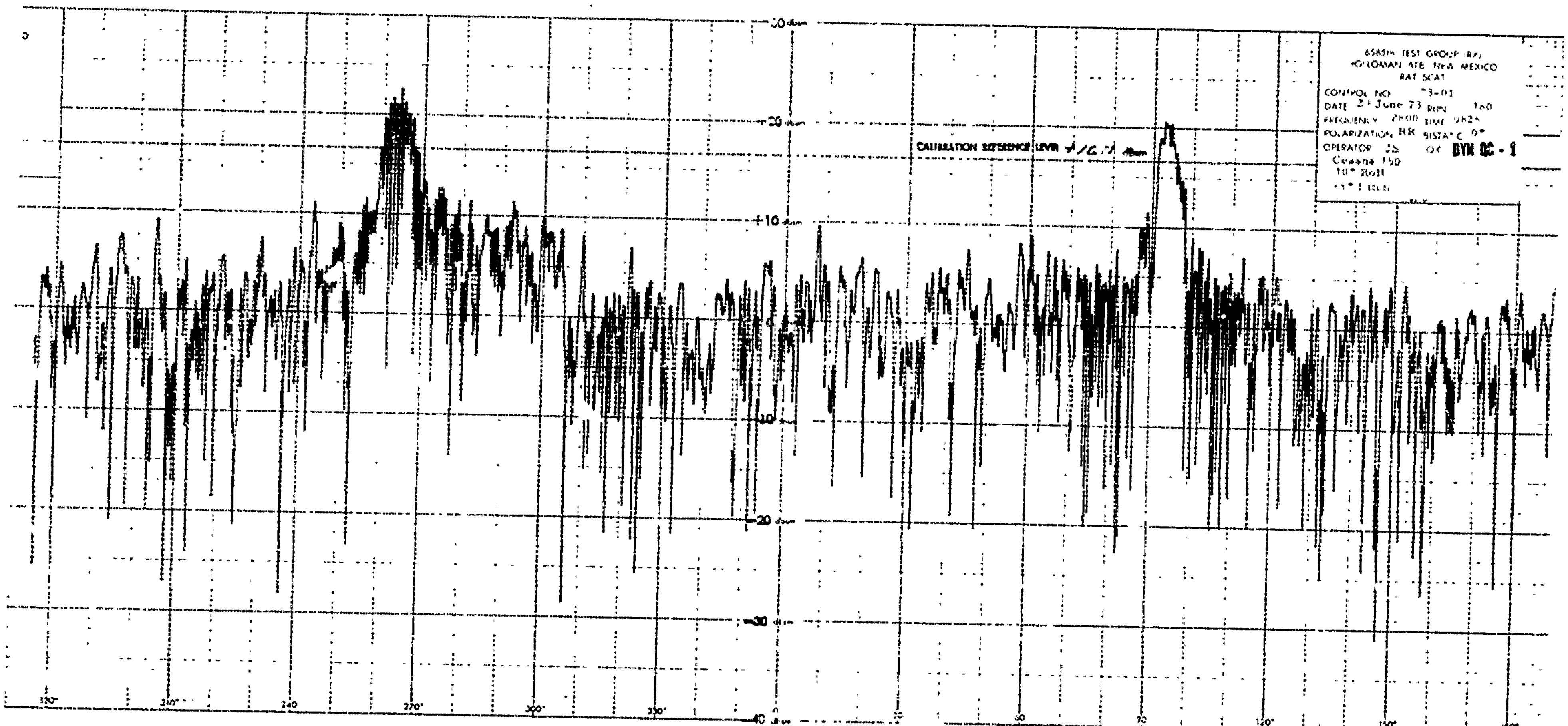


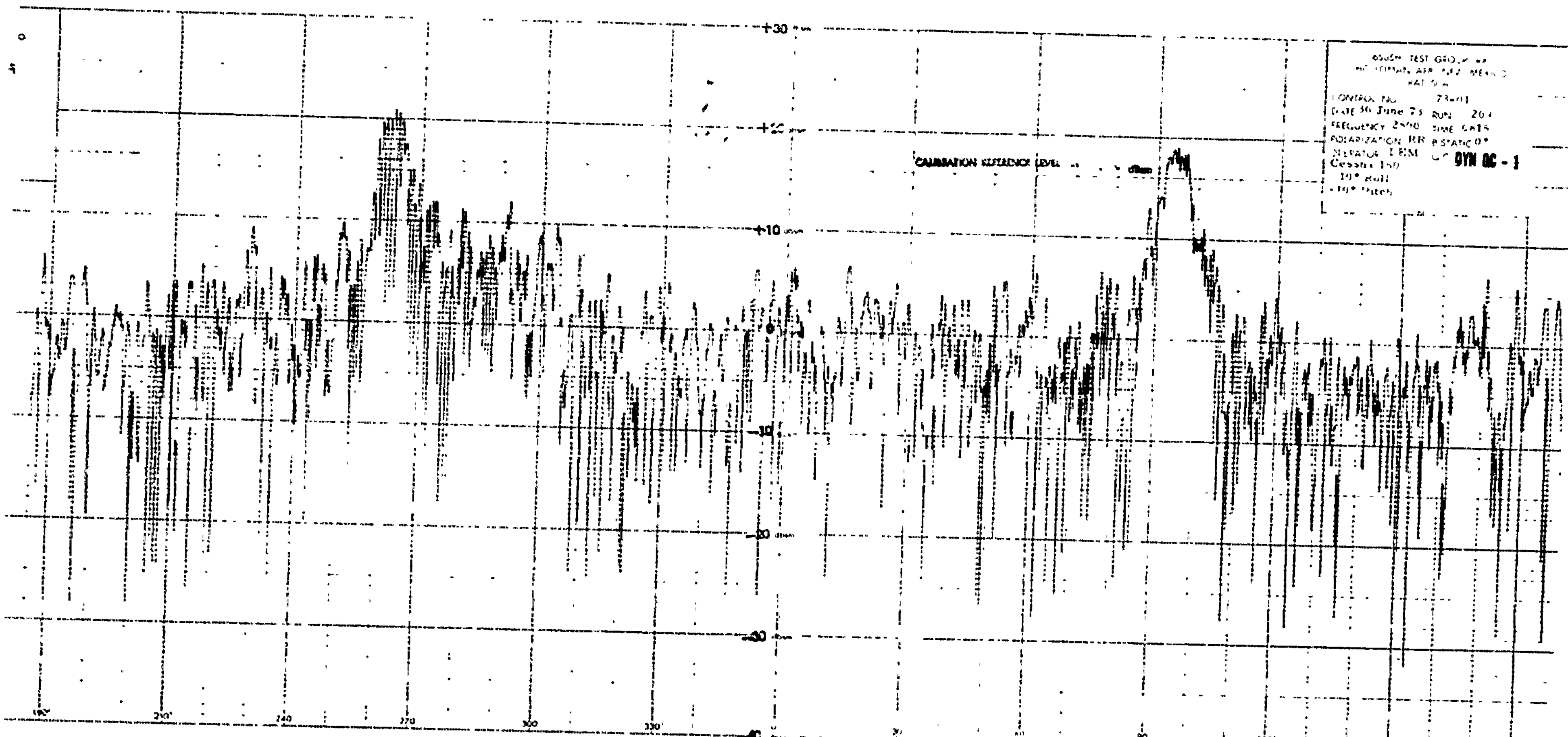


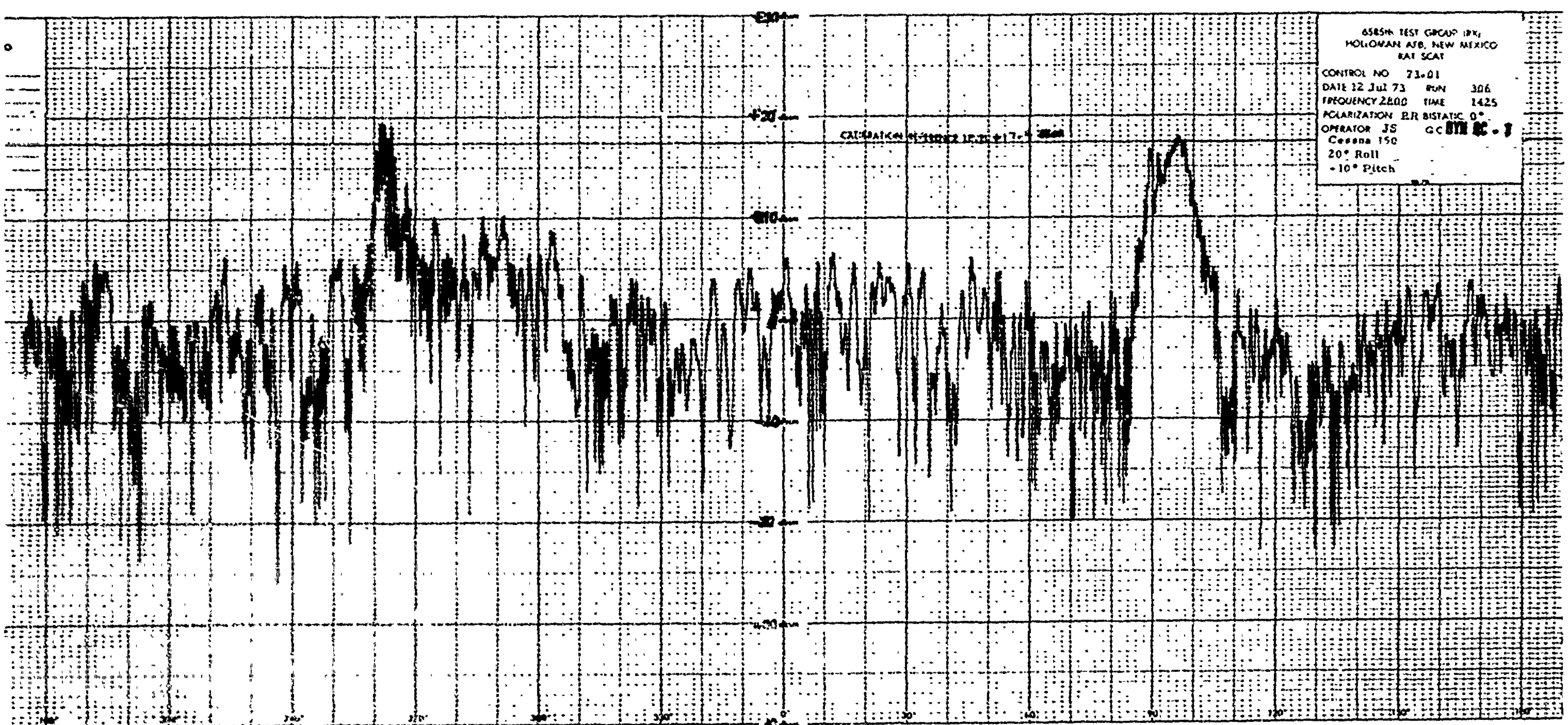
CONTROL NO. 73-01
FREQUENCY 2800
OPERATOR
Cessna 150
10° Roll
+10° Pitch
+30
+20
+10
0
-10
-20
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

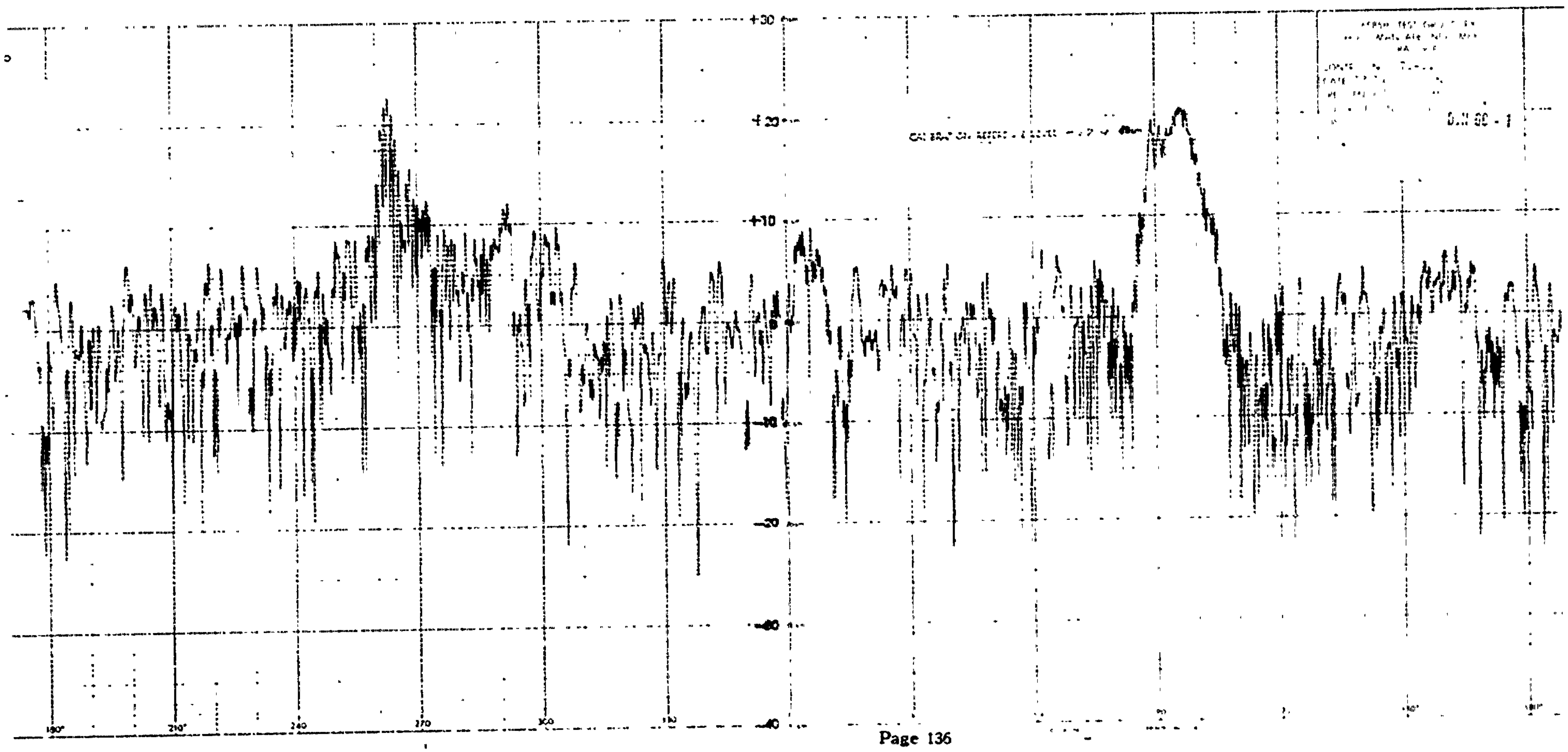



+30
+20
+10
0
-10
-20
-30
CONTROL NO
DATE
FREQUENCY
POLARIZATION
OPERATOR

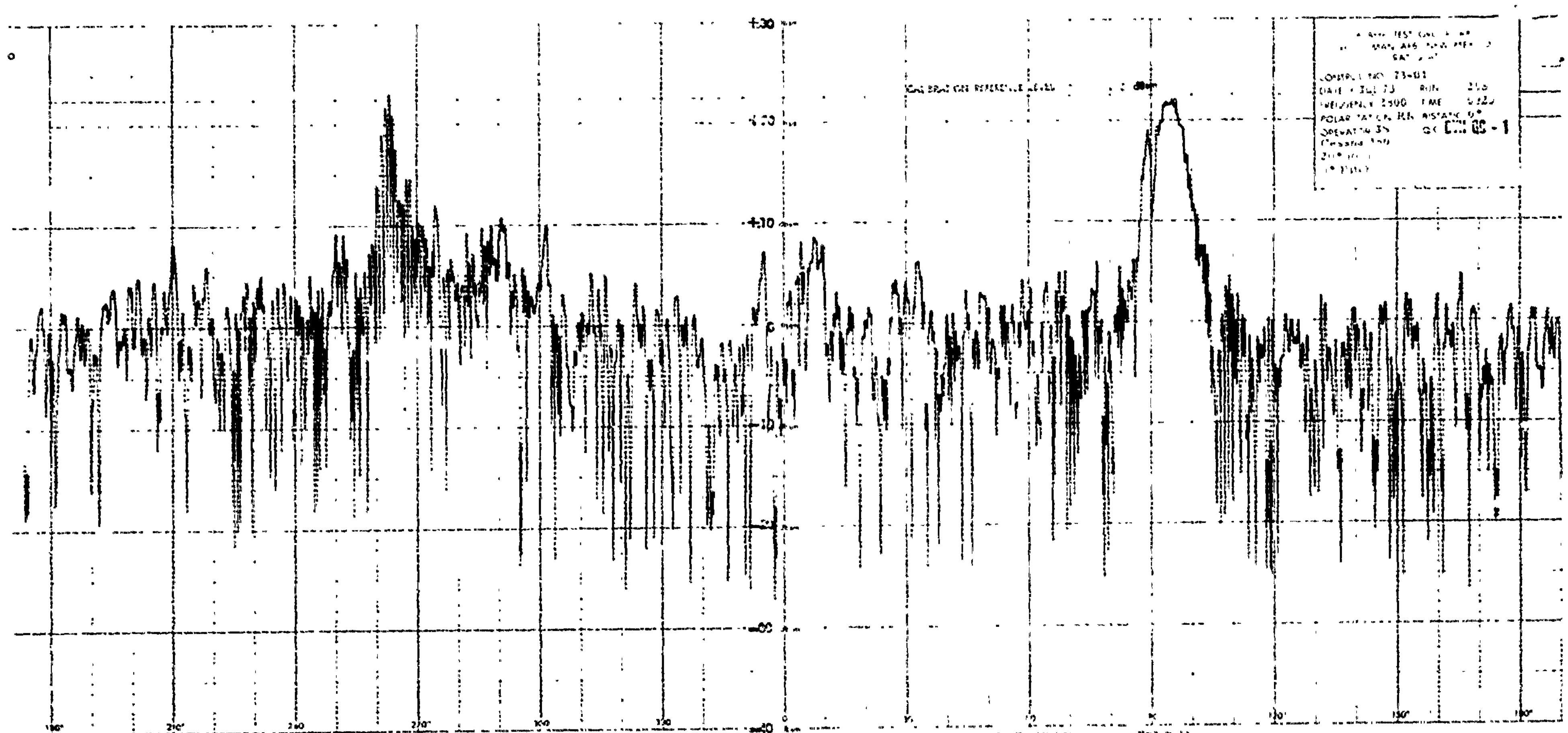

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 27 June 73 RUN 160
FREQUENCY 2800 TIME 0825
POLARIZATION RR BISTATIC 0°
OPERATOR JS QC BYN QC - 1
Cessna 150
10° Roll
CALIBRATION REFERENCE LEVEL +/6.7 dbm
-30 dbm
-20 dbm
+10 dbm
0
-10 dbm
-20 dbm
-30 dbm
-40 dbm
180°
210°
240
270°
300°
330°
30
60
90
120°
150°
180°

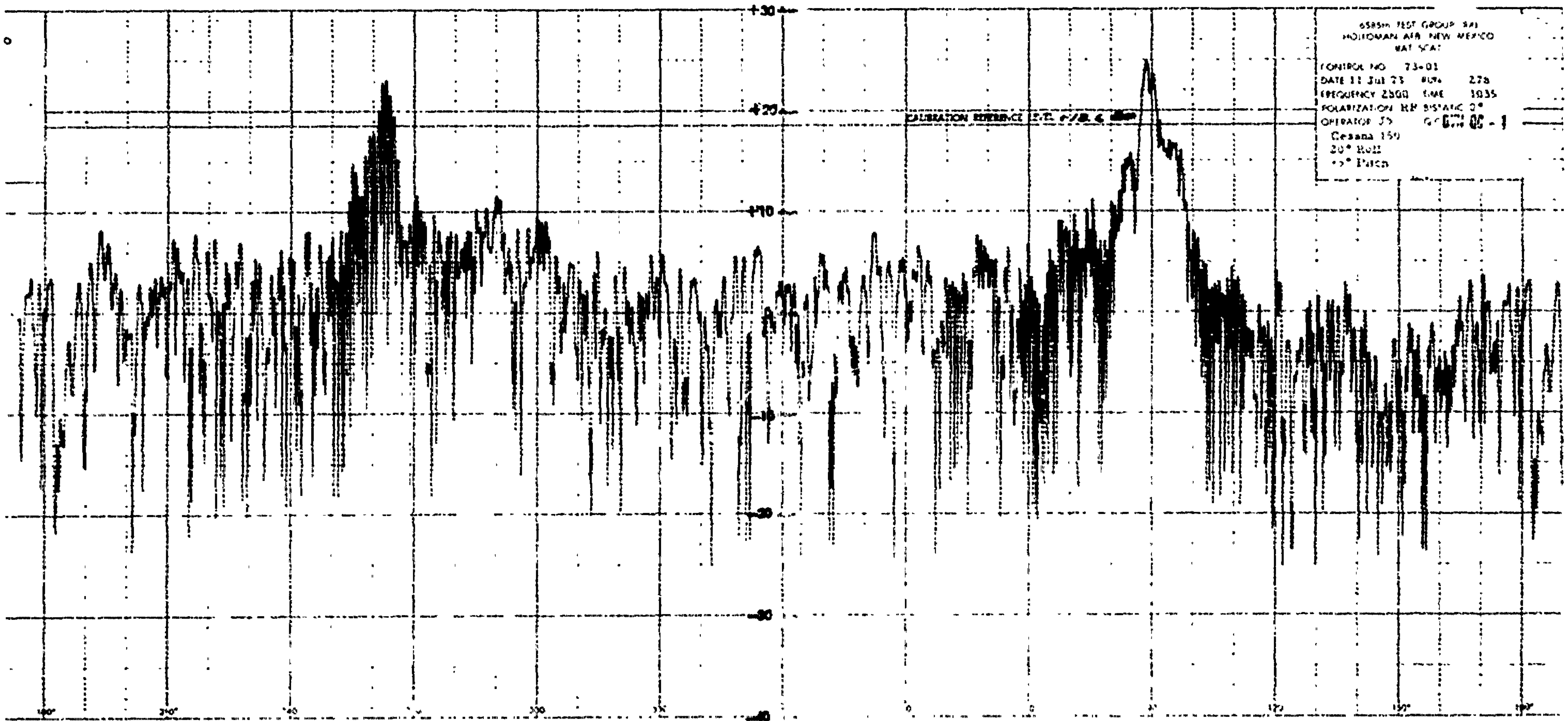

TEST GROUP
CONTROL NO.
DATE 30 June 73
RUN 204
FREQUENCY 2900
POLARIZATION RR
Cessna 150
10° Roll
DYN OC - 1
CALIBRATION REFERENCE LEVEL
dBm
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240
270
300
330°
90
120°
150°
180°

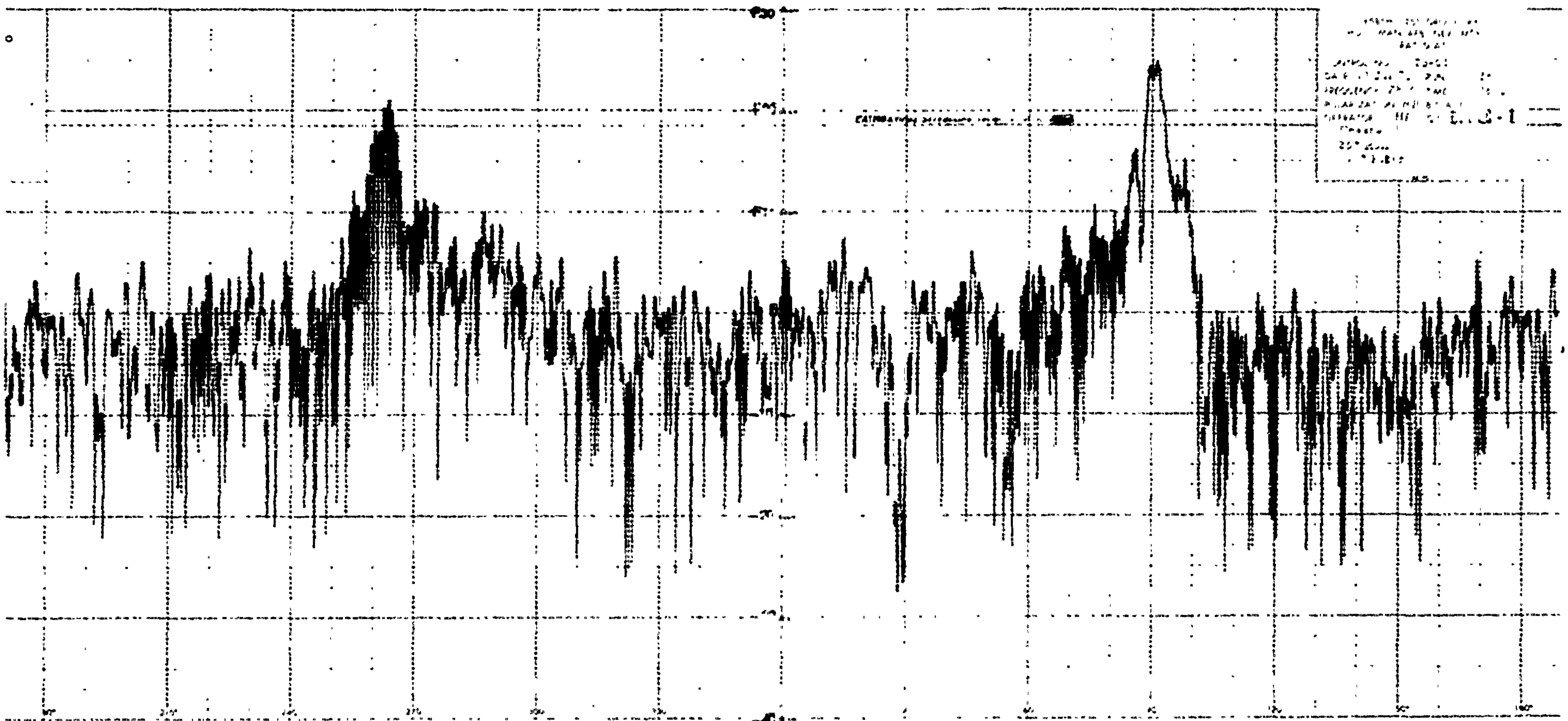

6585th TEST GROUP (PX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 12 Jul 73 RUN 306
FREQUENCY 2800 TIME 1425
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
+10° Pitch
+20
+10
0
-10
-20
-30
-40
30°
60°
90°
120°
150°
180°
270°
300°
330°

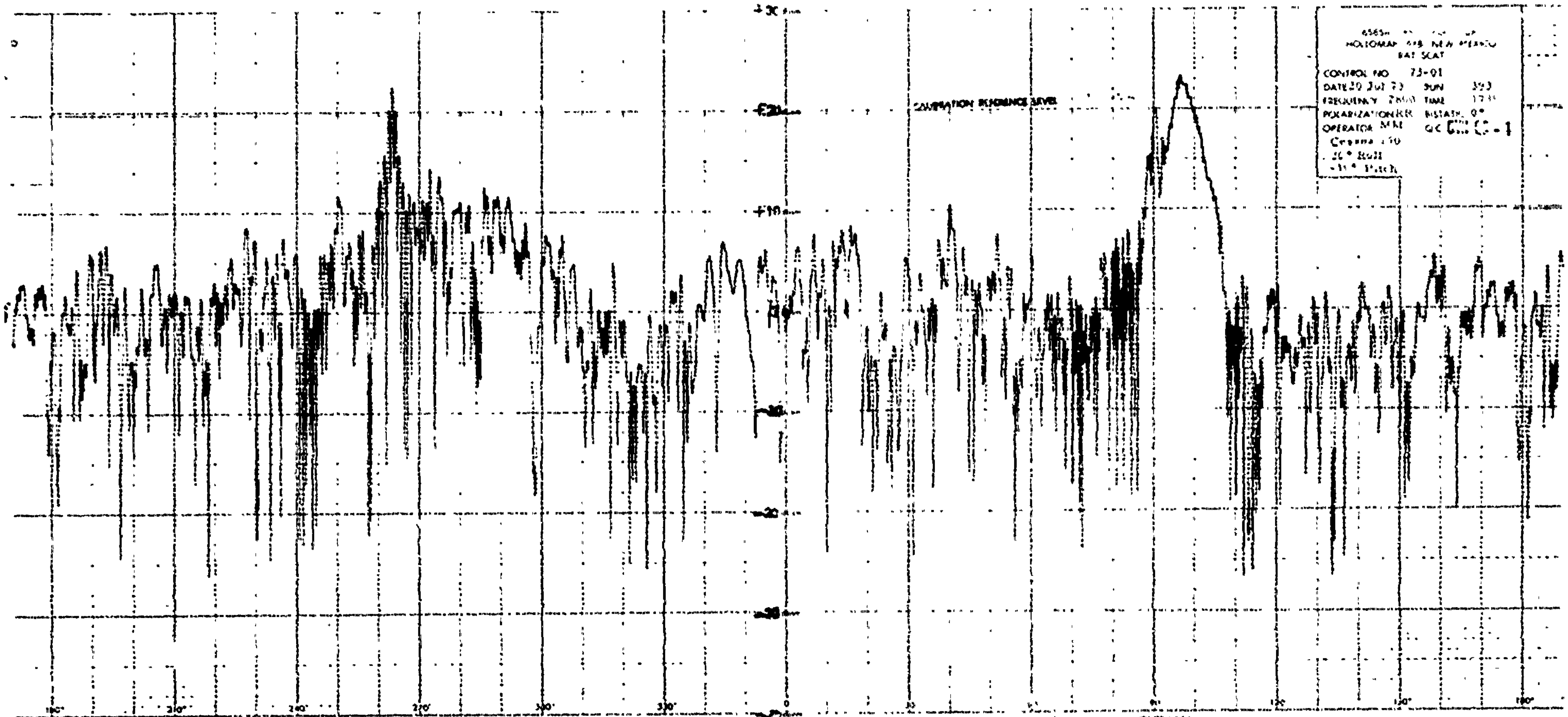


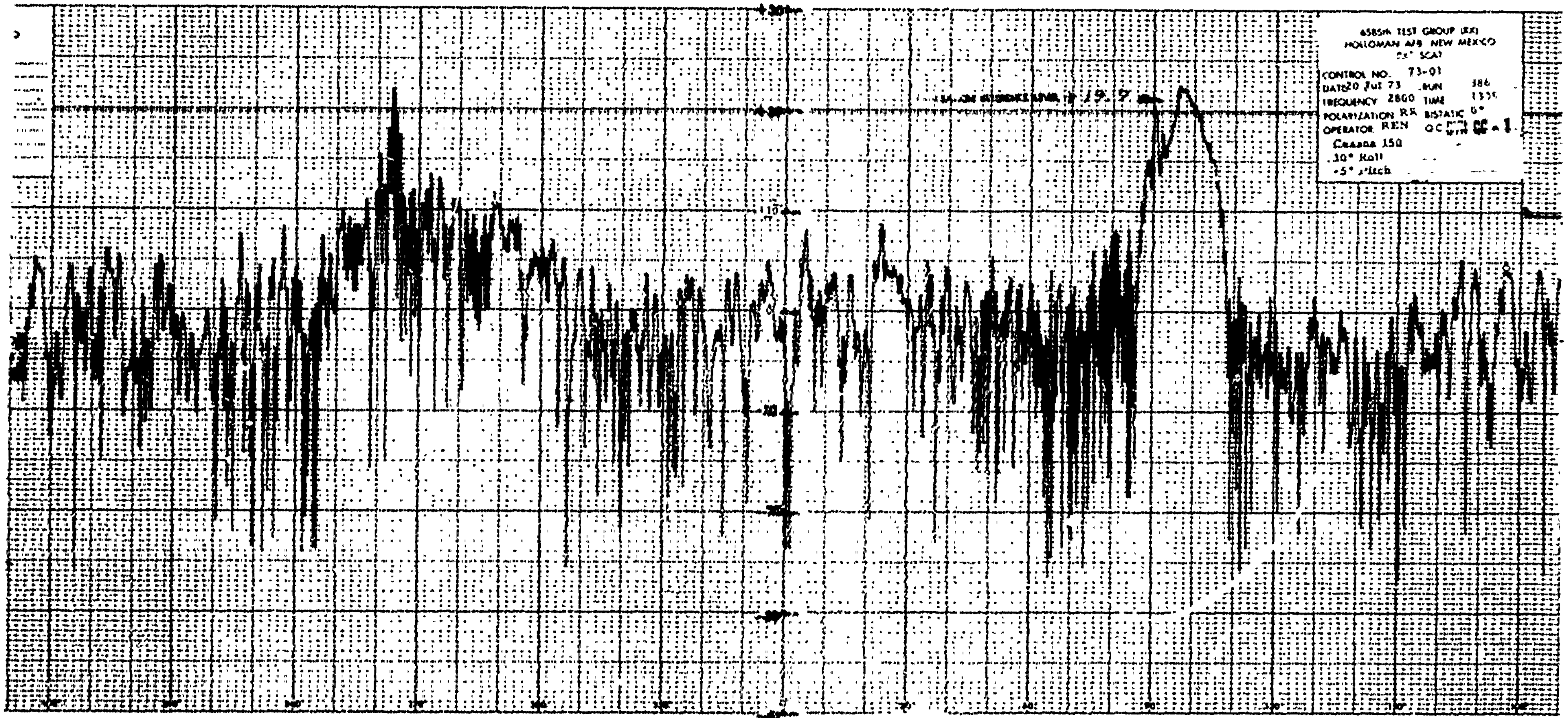
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240
270
300
330
90
150°
180°

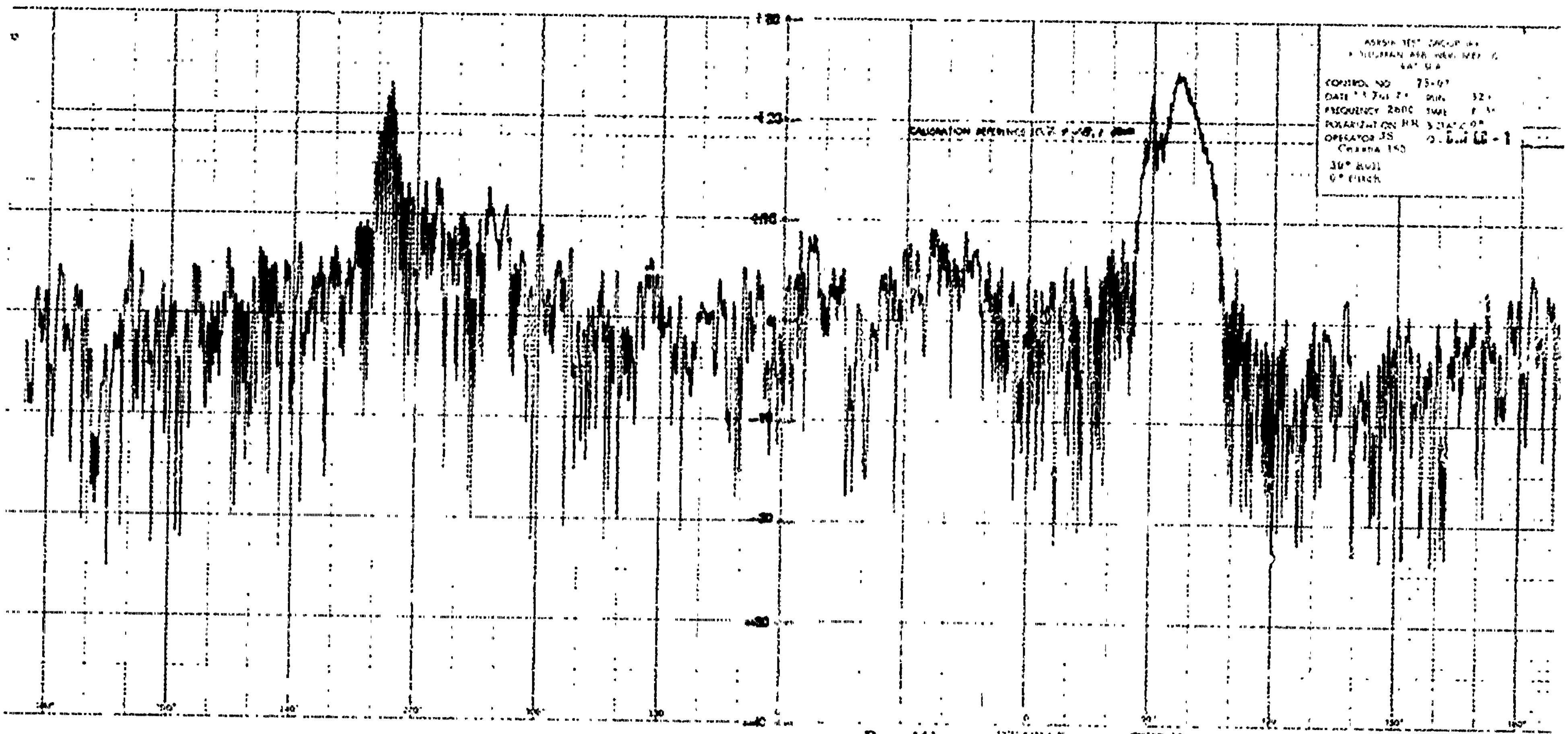

+30
+10
0
-40
190°
210°
270°

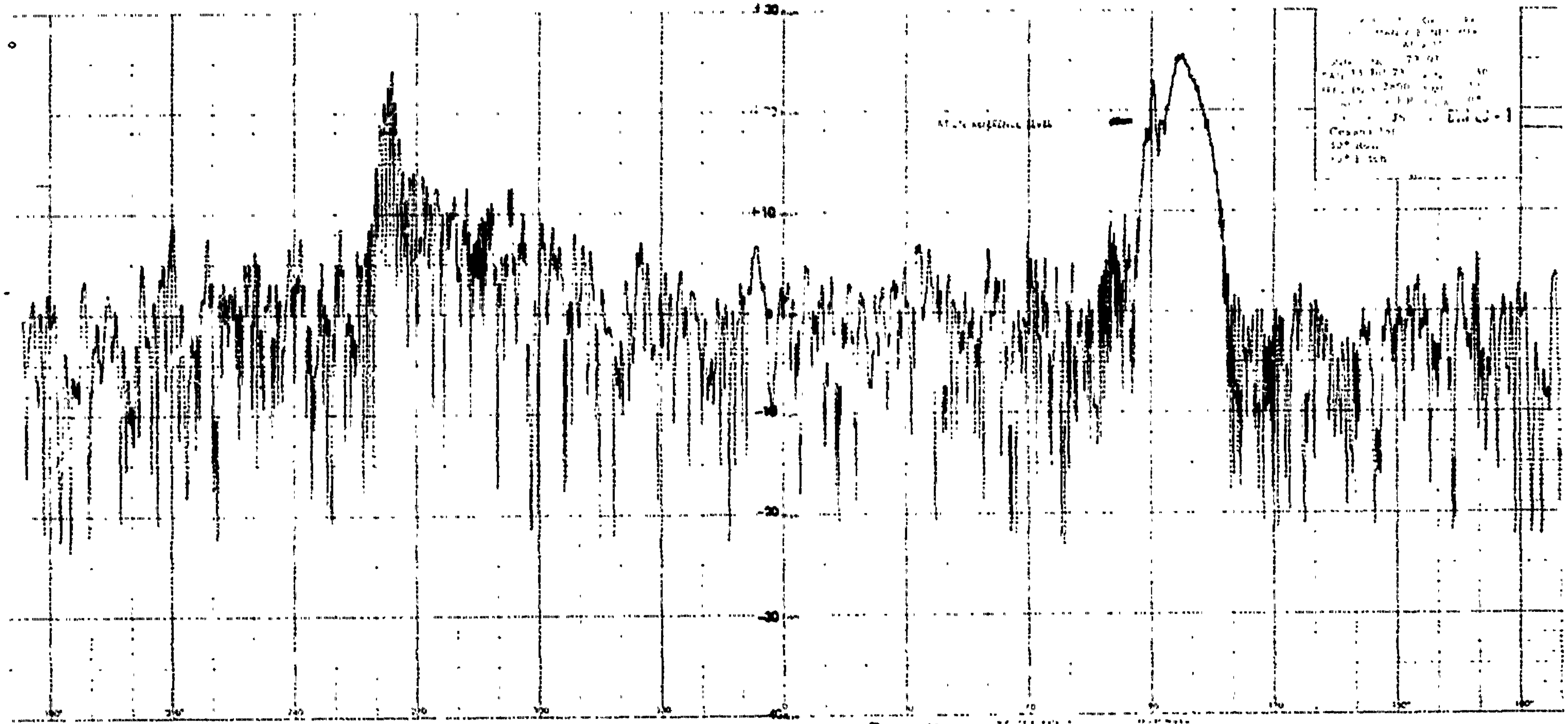

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 11 Jul 73 RUN 27a
FREQUENCY 2500 TIME 1035
POLARIZATION RR BISTATIC 2°
OPERATOR JS
Cessna 150
20° Roll
+5° Pitch
CALIBRATION REFERENCE
+30
+20
+10
-10
-20
-30
-40
180°
210°
300°
0
30°
120°
150°
180°

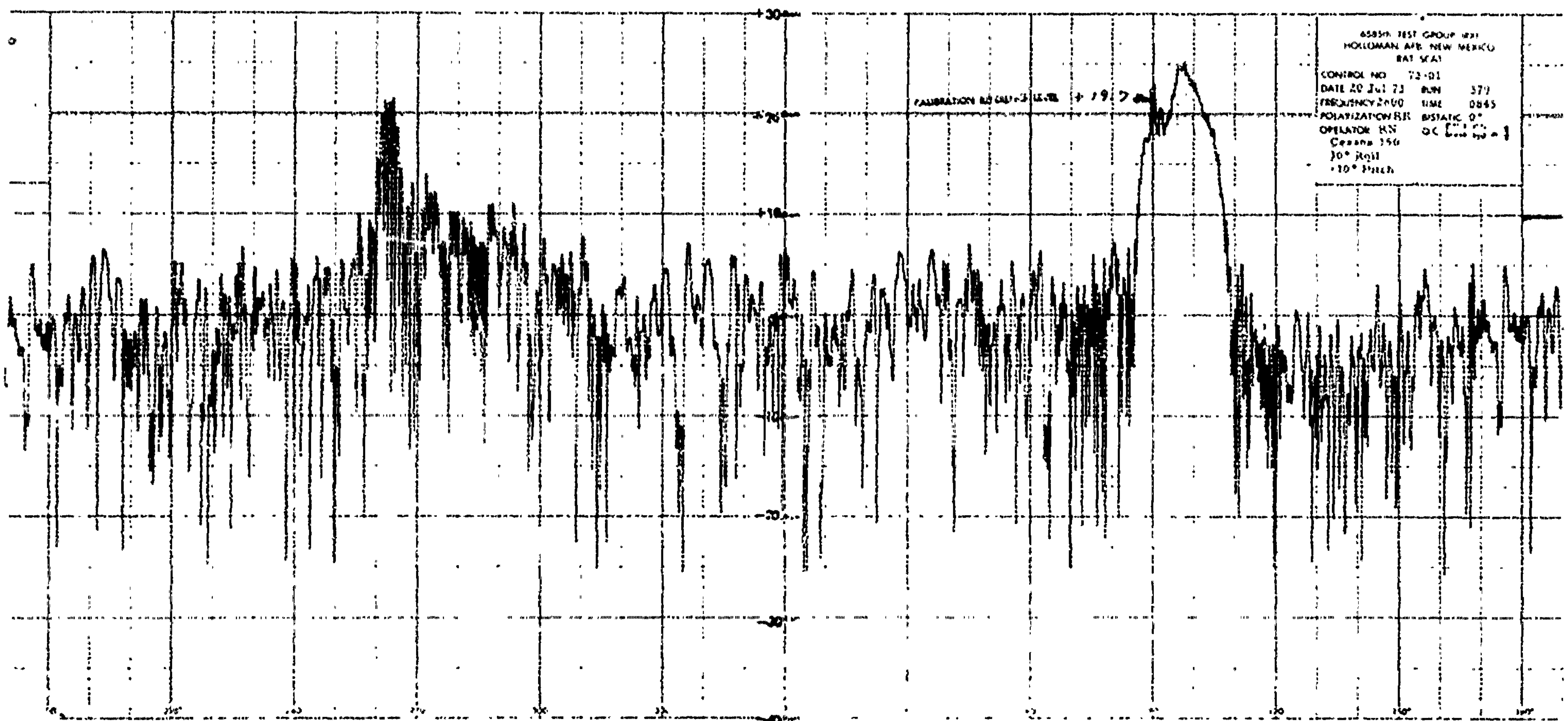



HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 393
FREQUENCY TIME
POLARIZATION RR BISTATIC 0°
OPERATOR MM QC
Cessna 150
CALIBRATION REFERENCE LEVEL
+30
+20
+10
-10
-20
-30
180°
210°
240°
270°
300°
330°
0
30
60
90
120
150
180°

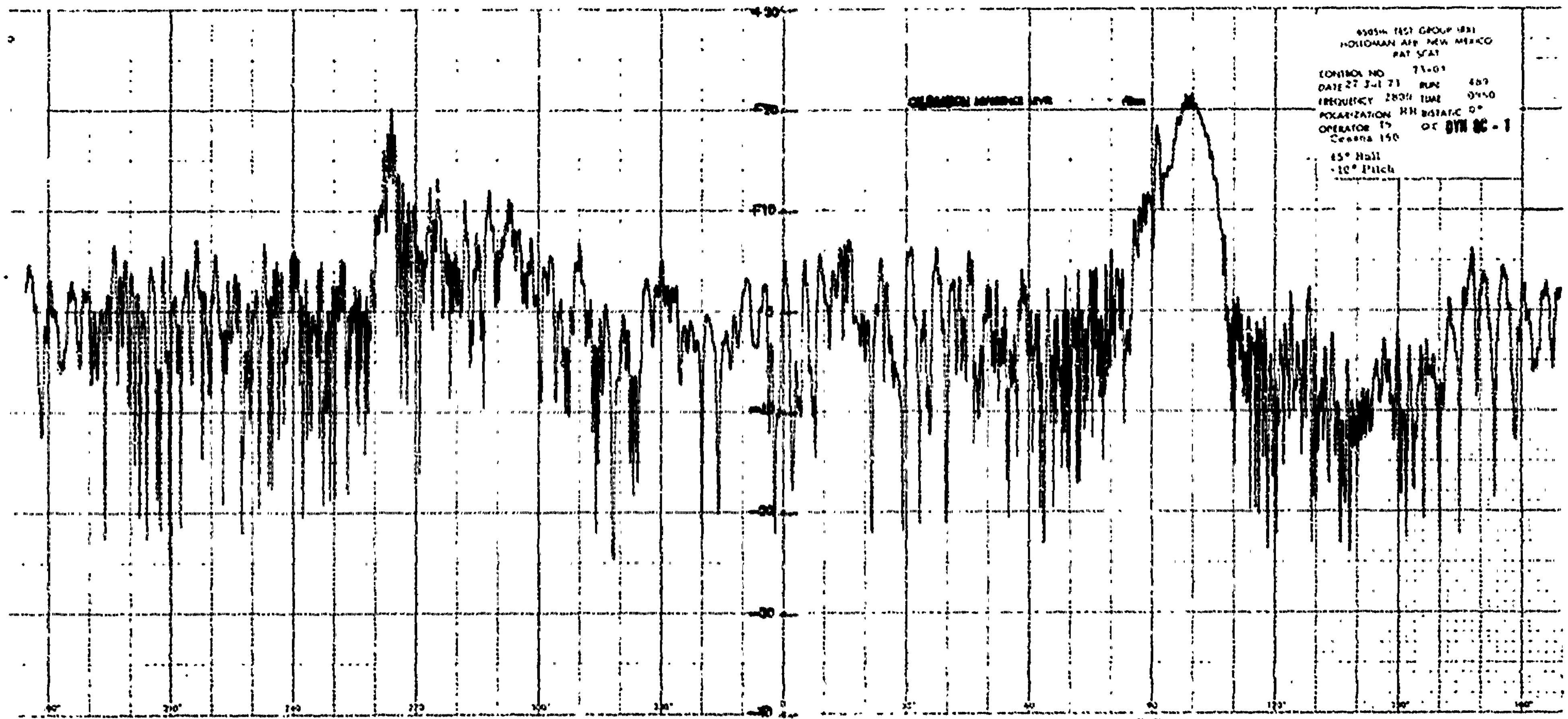

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
CONTROL NO. 73-01
DATE 20 Jul 73 RUN 386
FREQUENCY 2800 TIME 1335
POLARIZATION RR BISTATIC 0°
OPERATOR REN
Cessna 150
30° Roll
5° Pitch

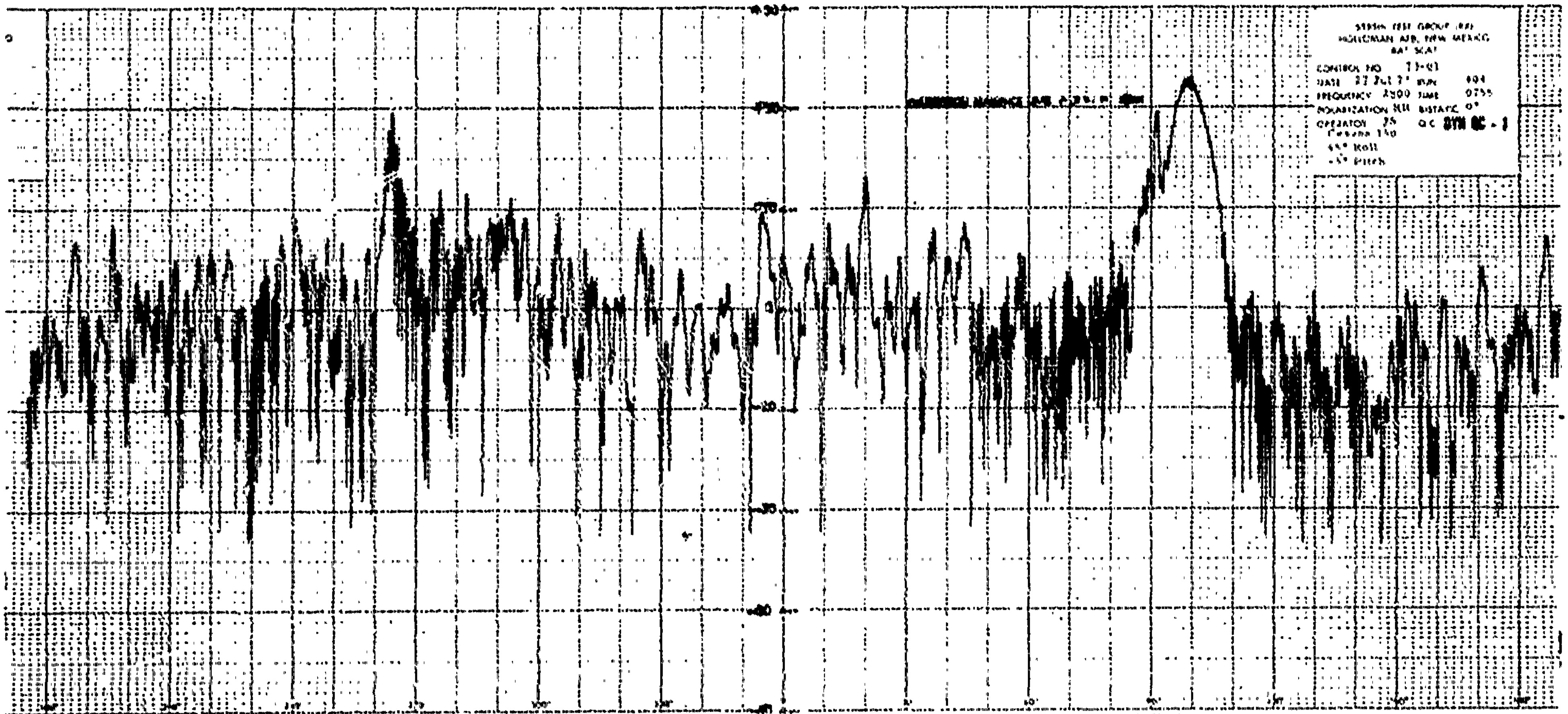

CONTROL NO.
DATE
FREQUENCY
POLARIZATION
OPERATOR
30° Roll
0° Pitch

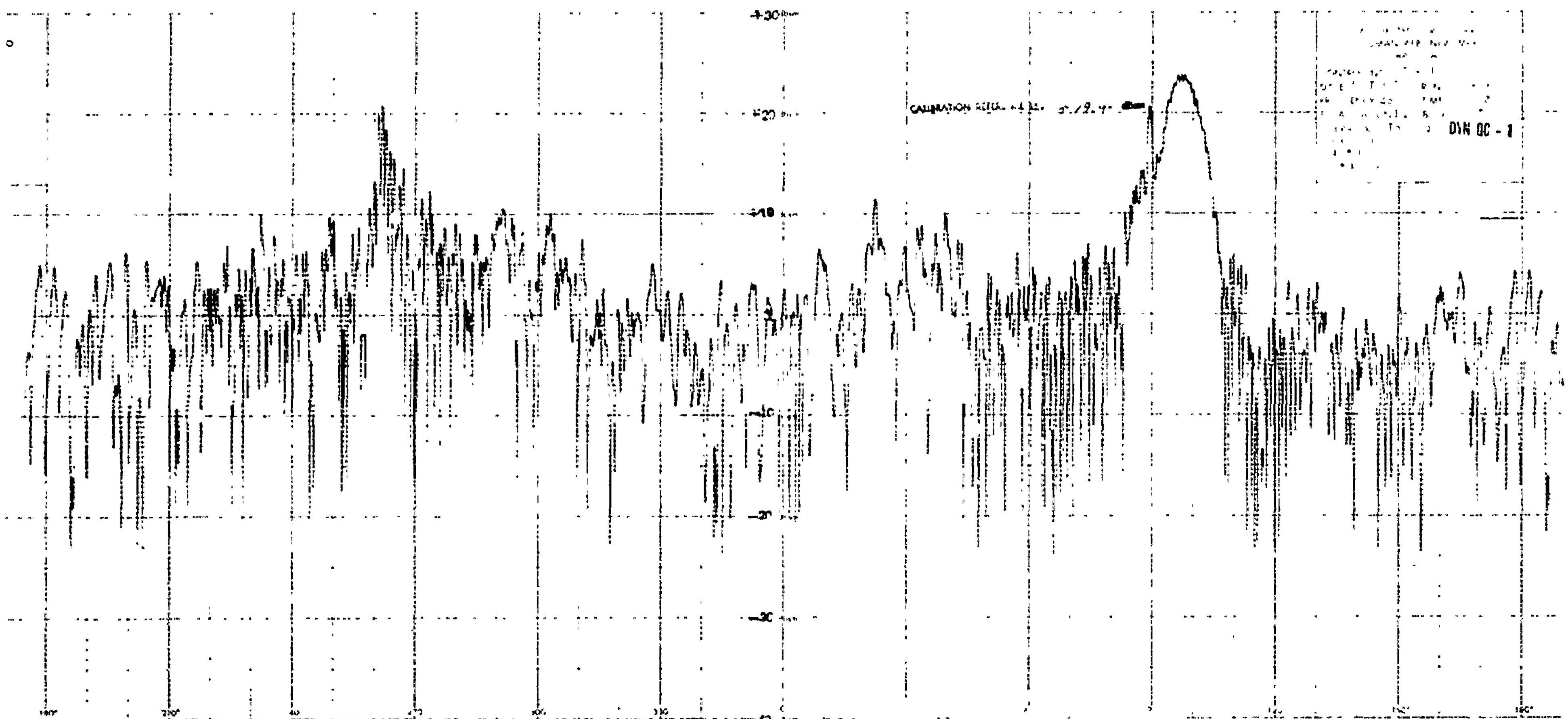




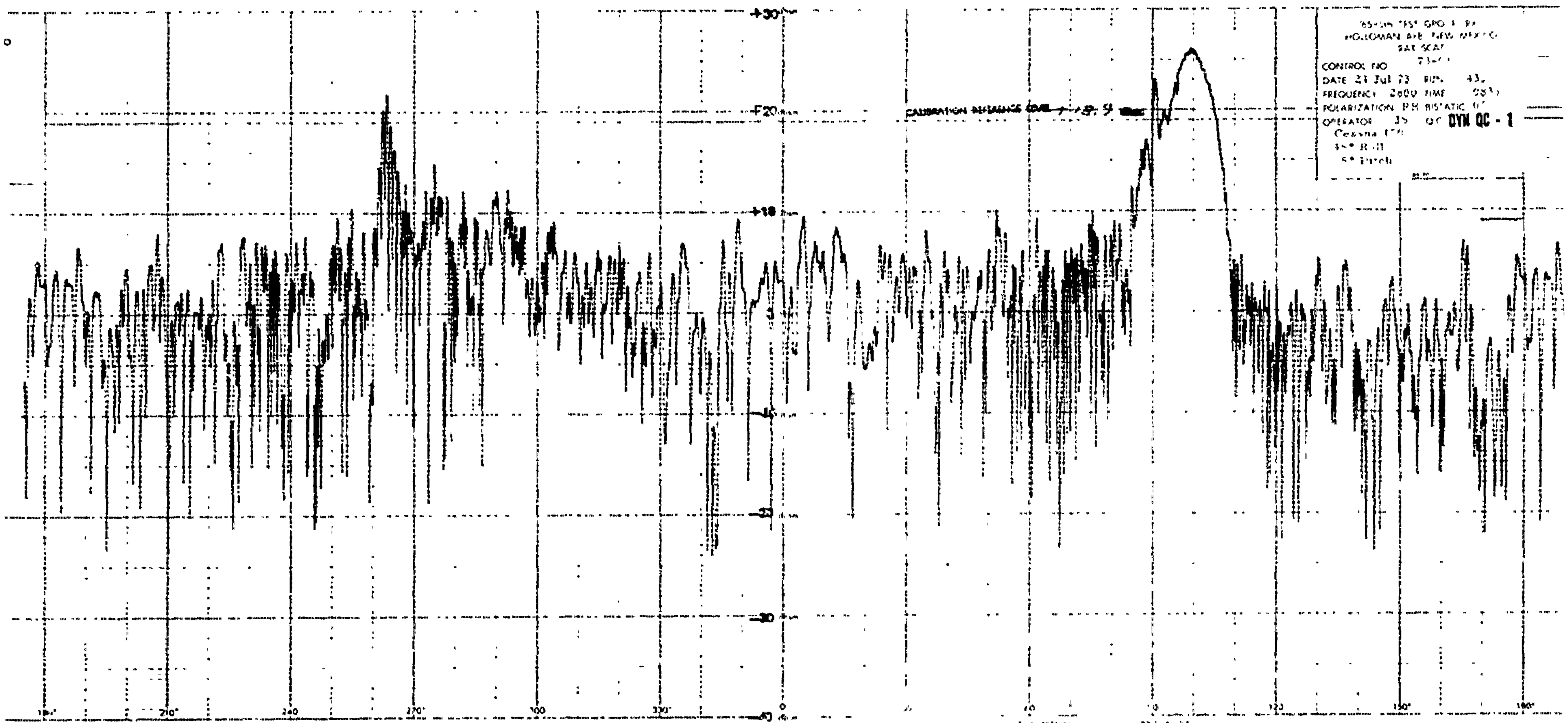
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 379
FREQUENCY 2600 TIME 0845
POLARIZATION RR BISTATIC 0°
OPERATOR RN
Cessna 150
30° Roll
+10° Pitch
CALIBRATION
+19.7
+30
+20
+10
0
-10
-20
-30
-40

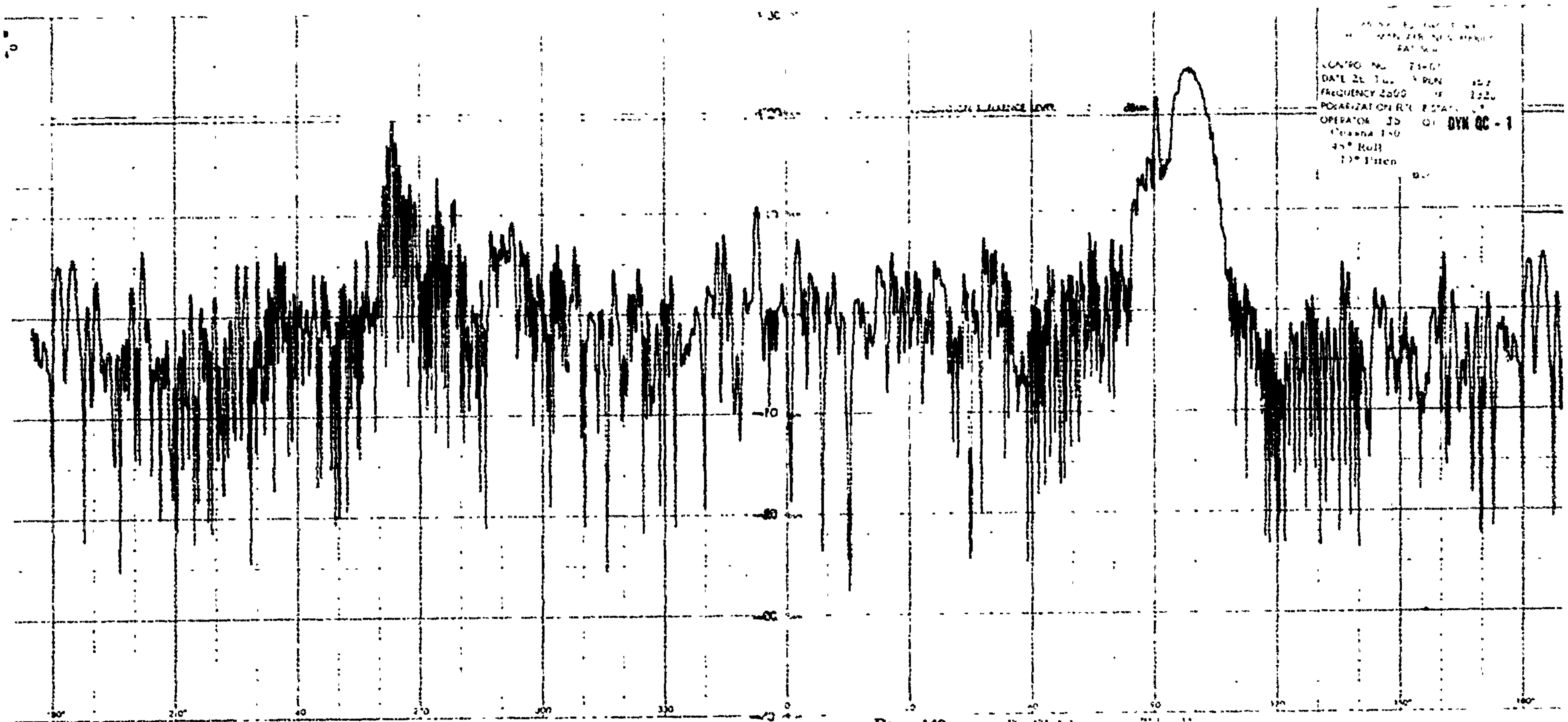

HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO
DATE 27 Jul 71
FREQUENCY
POLARIZATION
OPERATOR
Cessna 150
BISTATIC 0°
DYN SC - 1
45° Roll
-10° Pitch
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-30
-40

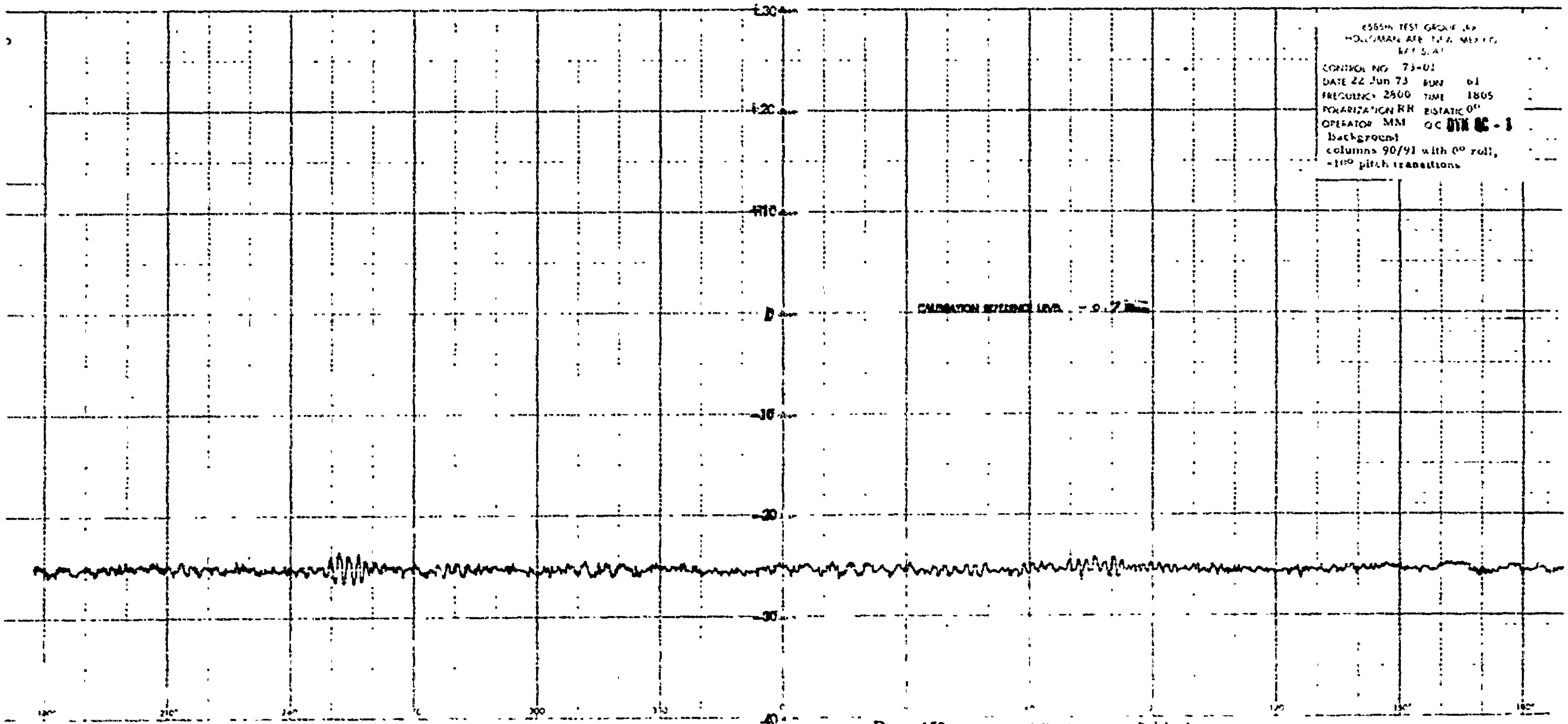




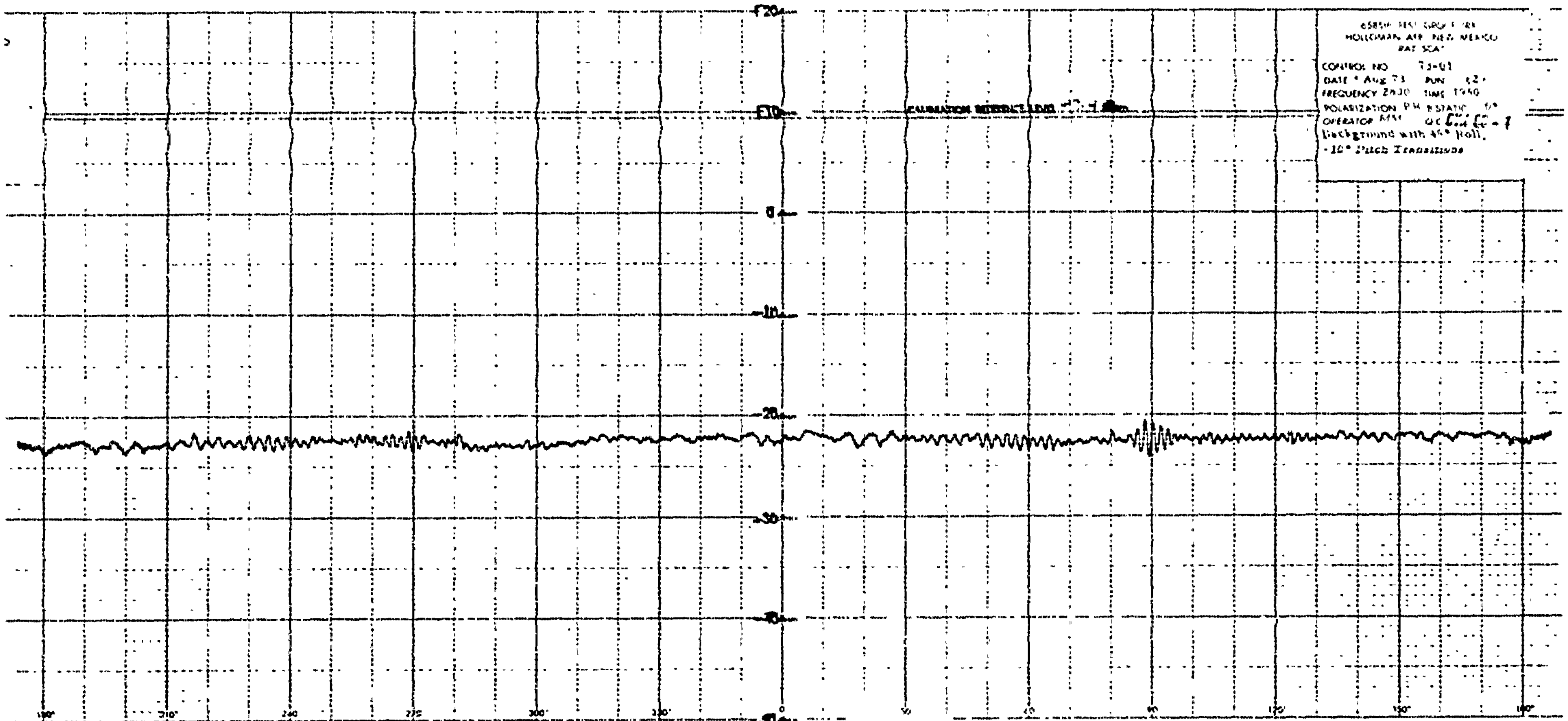
+30
+20
+10
-10
-20
-30
CALIBRATION
DIN QC - 1


HOLLOMAN AFB NEW MEXICO
SAT SCAT
CONTROL NO
DATE 23 Jul 73
FREQUENCY 2000 TIME
POLARIZATION
OPERATOR
DYN QC - 1
Cessna
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240
270°
300
330°
0
150°
180°

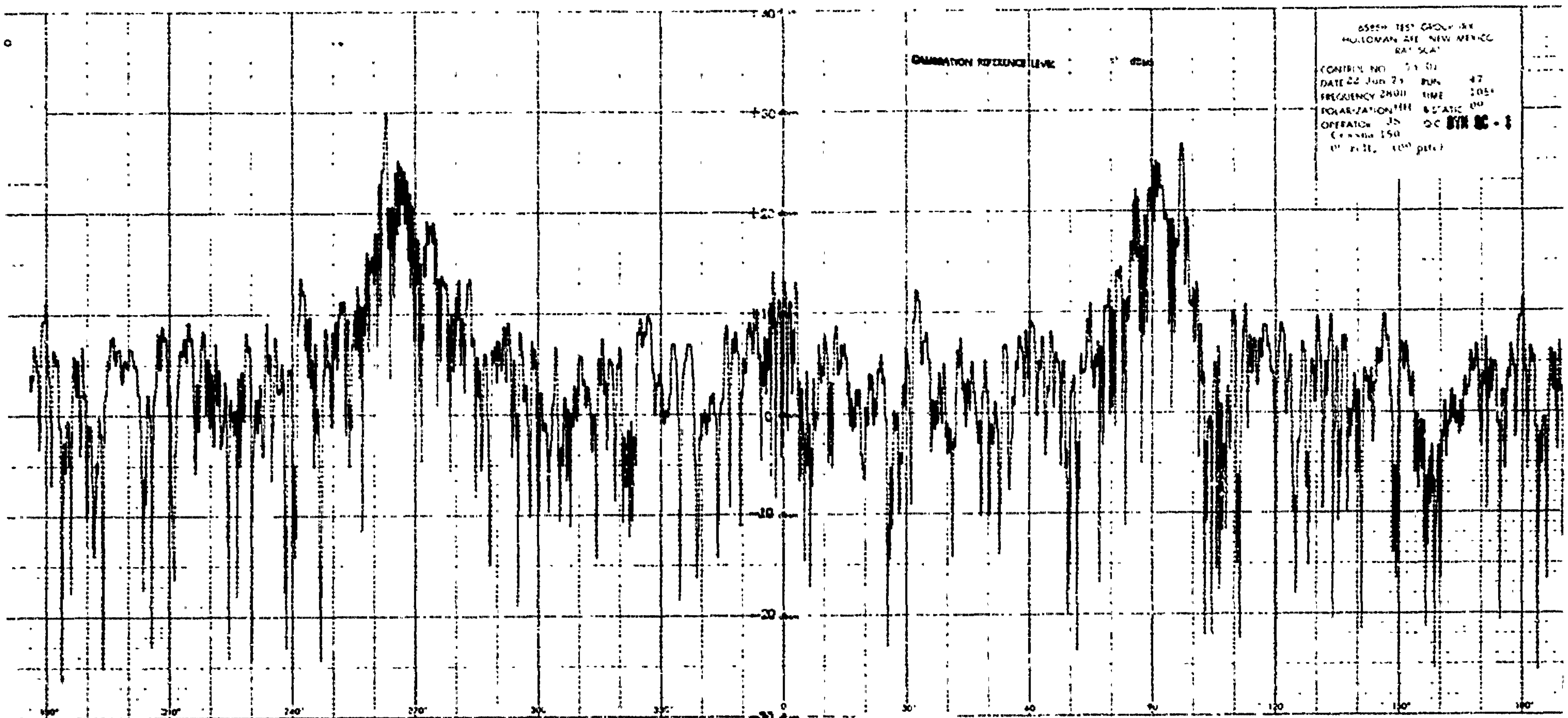

DYN QC - 1
Cessna 150
45° Roll
10° Pitch



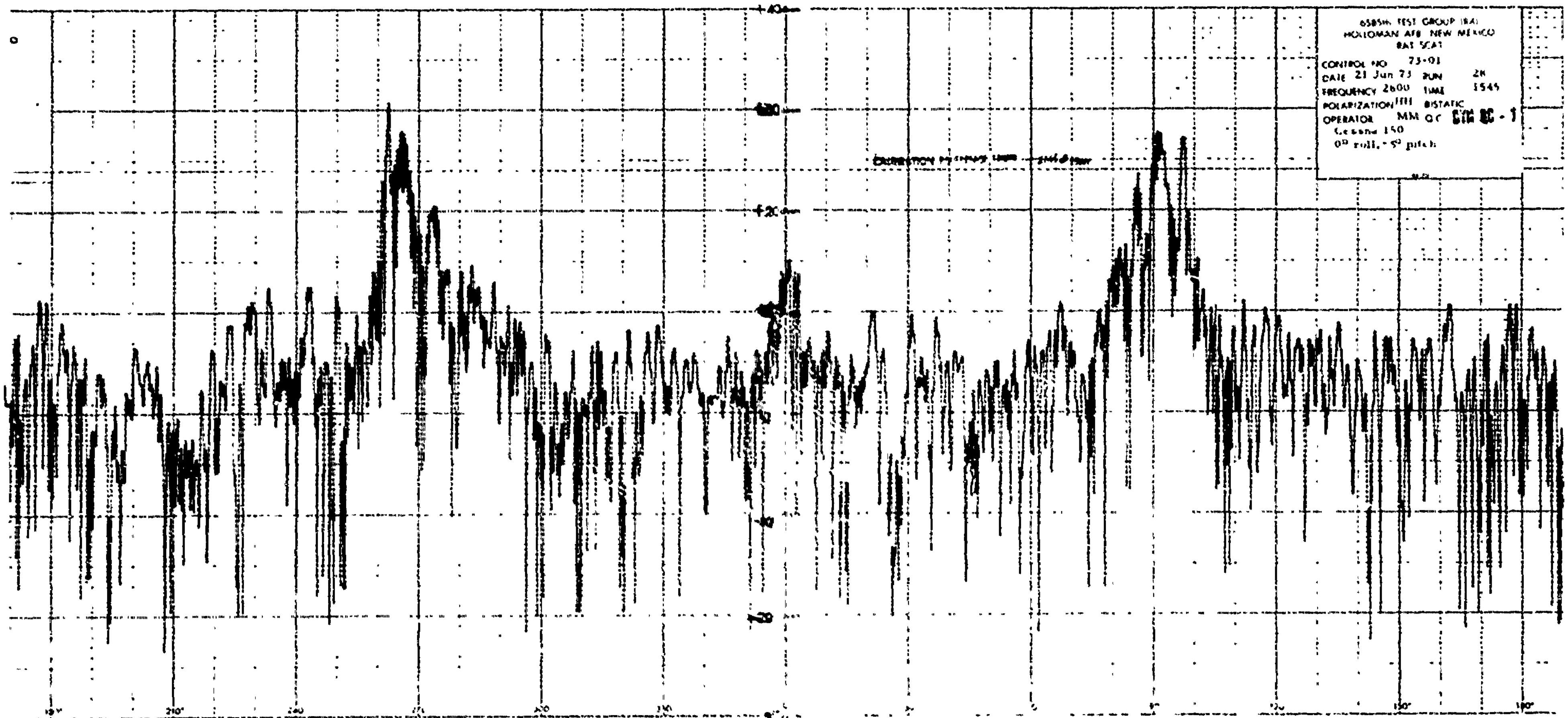
CONTROL NO. 73-01
DATE 22 Jun 73 RUN 01
FREQUENCY 2800 TIME 1805
POLARIZATION RR BISTATIC 0°
OPERATOR MM
background
columns 90/91 with 0° roll,
±10° pitch transitions
+30
+20
+10
0
-10
-20
-30
-40
CALIBRATION REFERENCE LEVEL = -9.7

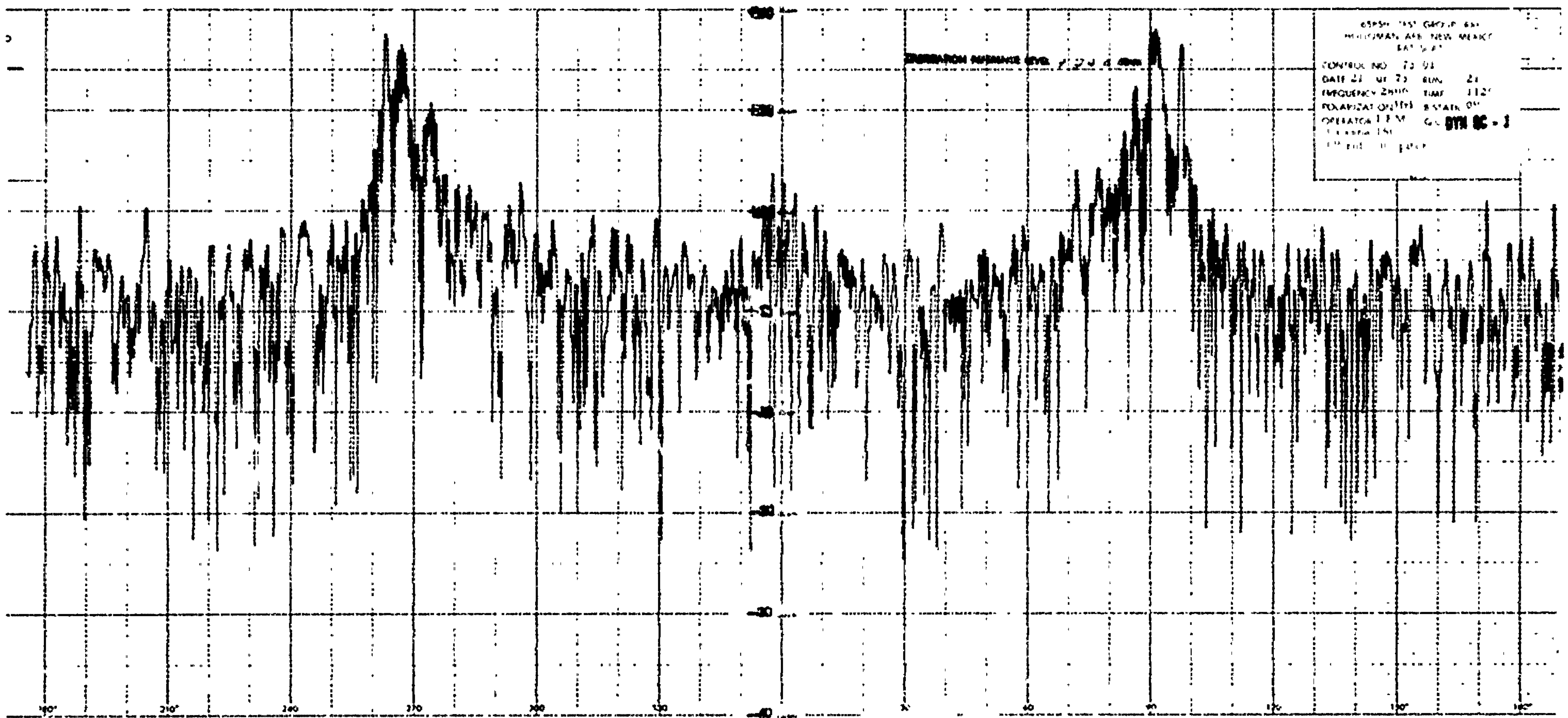


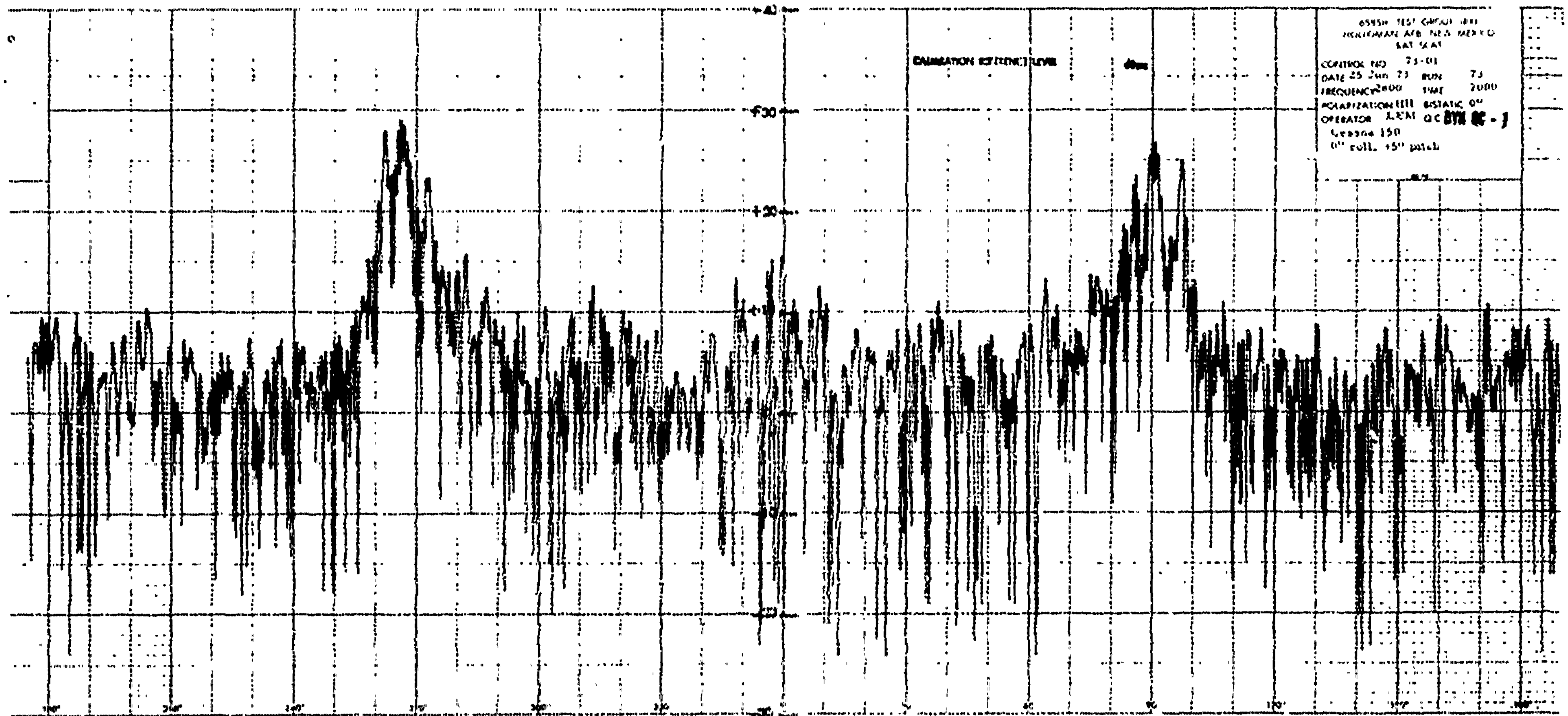
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE Aug 73 RUN
FREQUENCY 2830 TIME 1950
POLARIZATION STATIC
OPERATOR
Background with 45° Roll,
-10° Pitch Transitions
CALIBRATION REFERENCE LEVEL
+20
+10
0
-10
-20
-30
-40
-50
180°
210°
240
270
300°
330°
0
30
60
90
120°
150°
180°

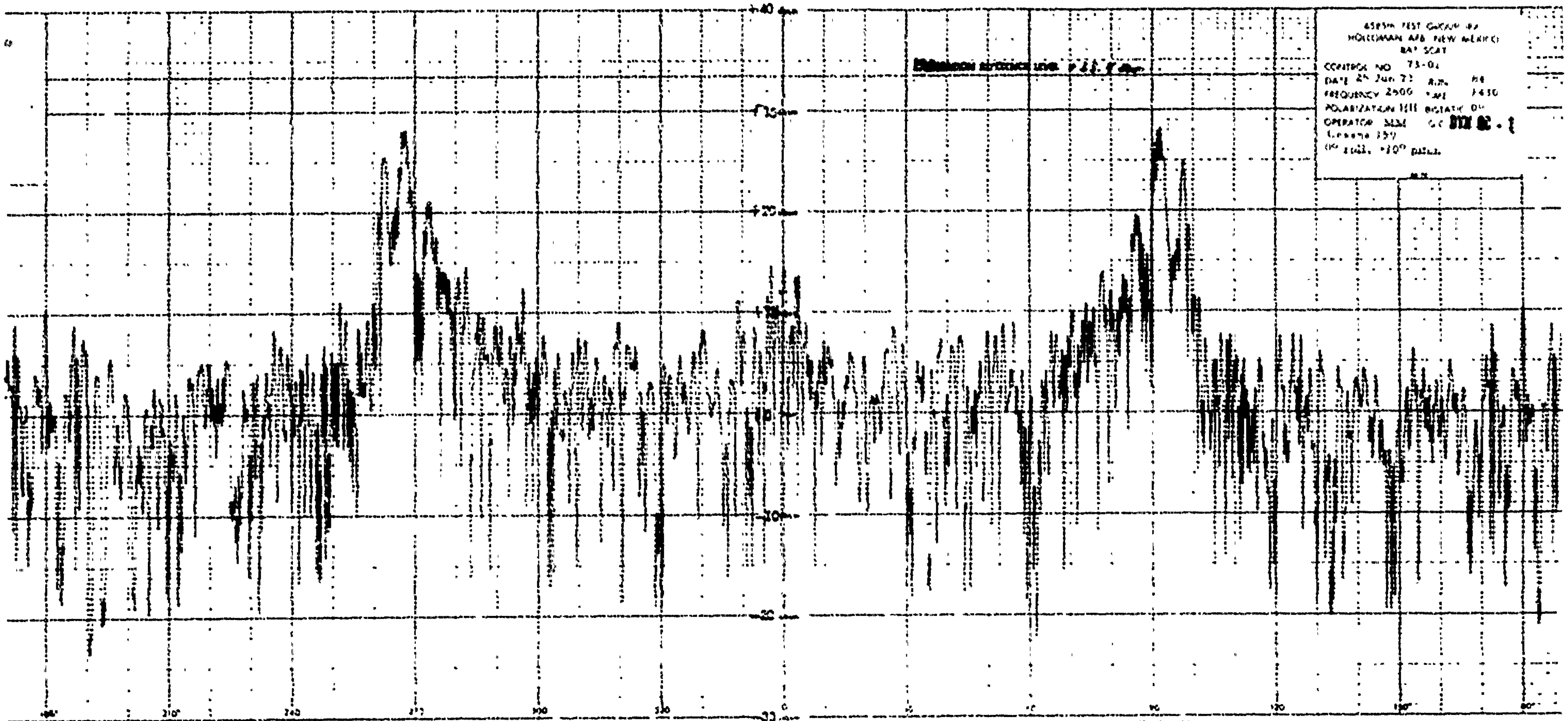


CALIBRATION REFERENCE LEVEL
CONTROL NO
DATE 22 Jun
RUN 47
FREQUENCY 2800
TIME
POLARIZATION HH
OPERATOR JS
Cessna 150
+30 dbm
+20 dbm
0
-10 dbm
-20 dbm
-30 dbm
180°
210°
240°
270°
330°
0
30°
60
90
120
150°
180°

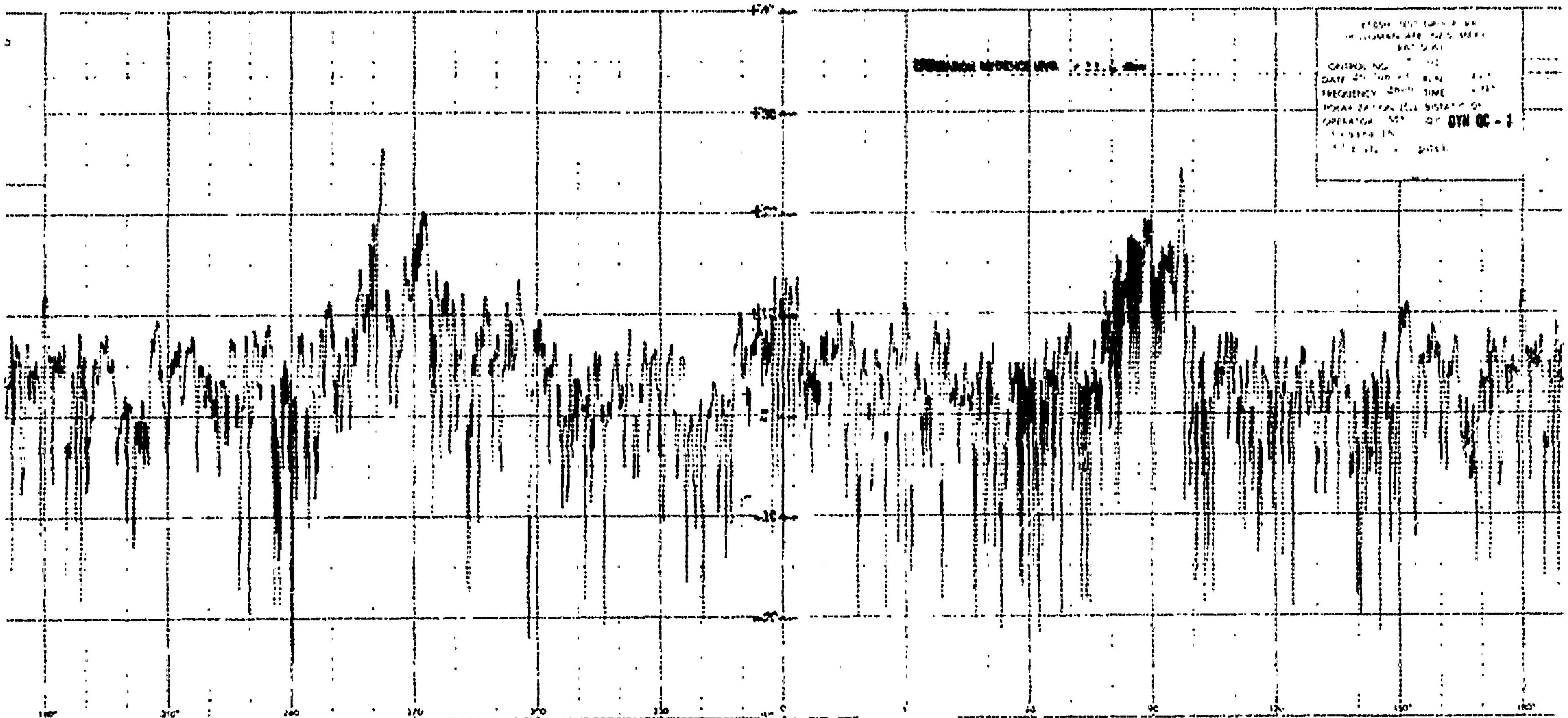

6585th TEST GROUP (RA)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 21 Jun 73 RUN 28
FREQUENCY 2600 TIME 1545
POLARIZATION HH BISTATIC
OPERATOR MM QC
Cessna 150
0° roll, -5° pitch
+40
+20
-10
-20
210°
240°
300°
330°
90°
120°
150°
180°

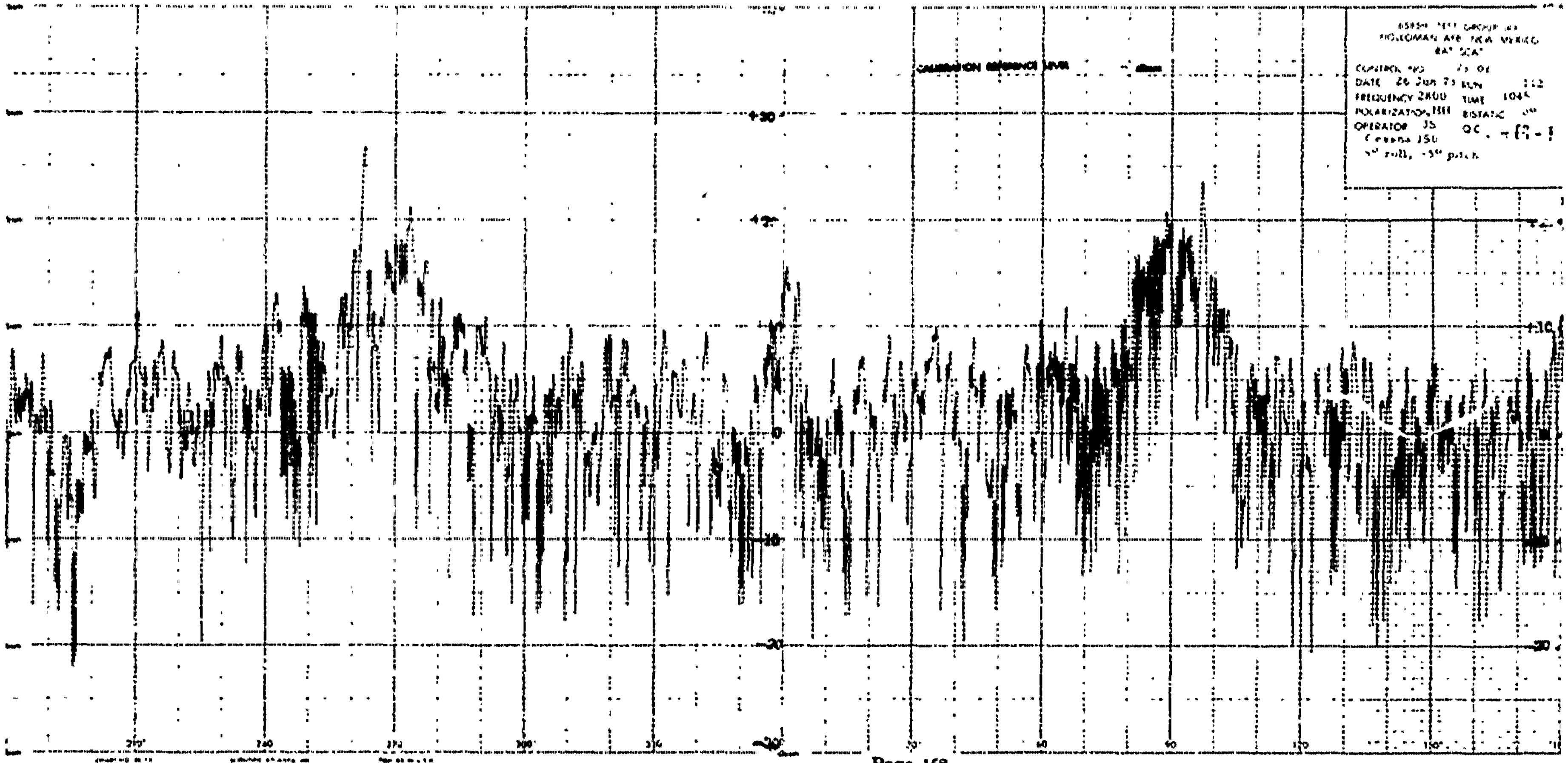

CONTROL NO
DATE
RUN
FREQUENCY
TIME
OPERATOR
-30
-40
210°
240
270
300
330
60
90
120
150°
180°

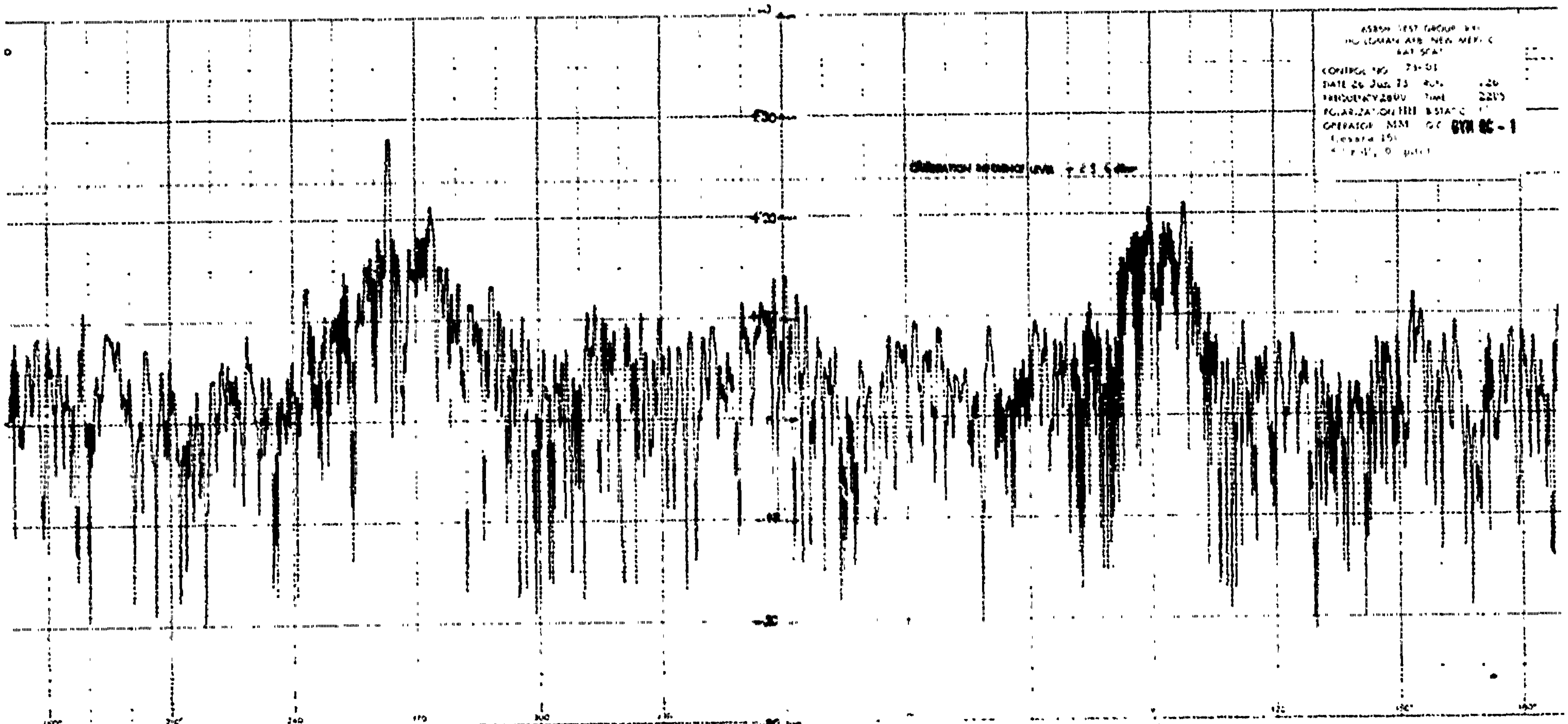

CALIBRATION REFERENCE LEVEL
CONTROL NO 73-01
DATE 25 Jun 73 RUN 73
FREQUENCY 2800 TIME 2000
POLARIZATION HH BISTATIC 0°
0° roll, +5° pitch
+40
+30
+20
+10
0
-10
-20
-30

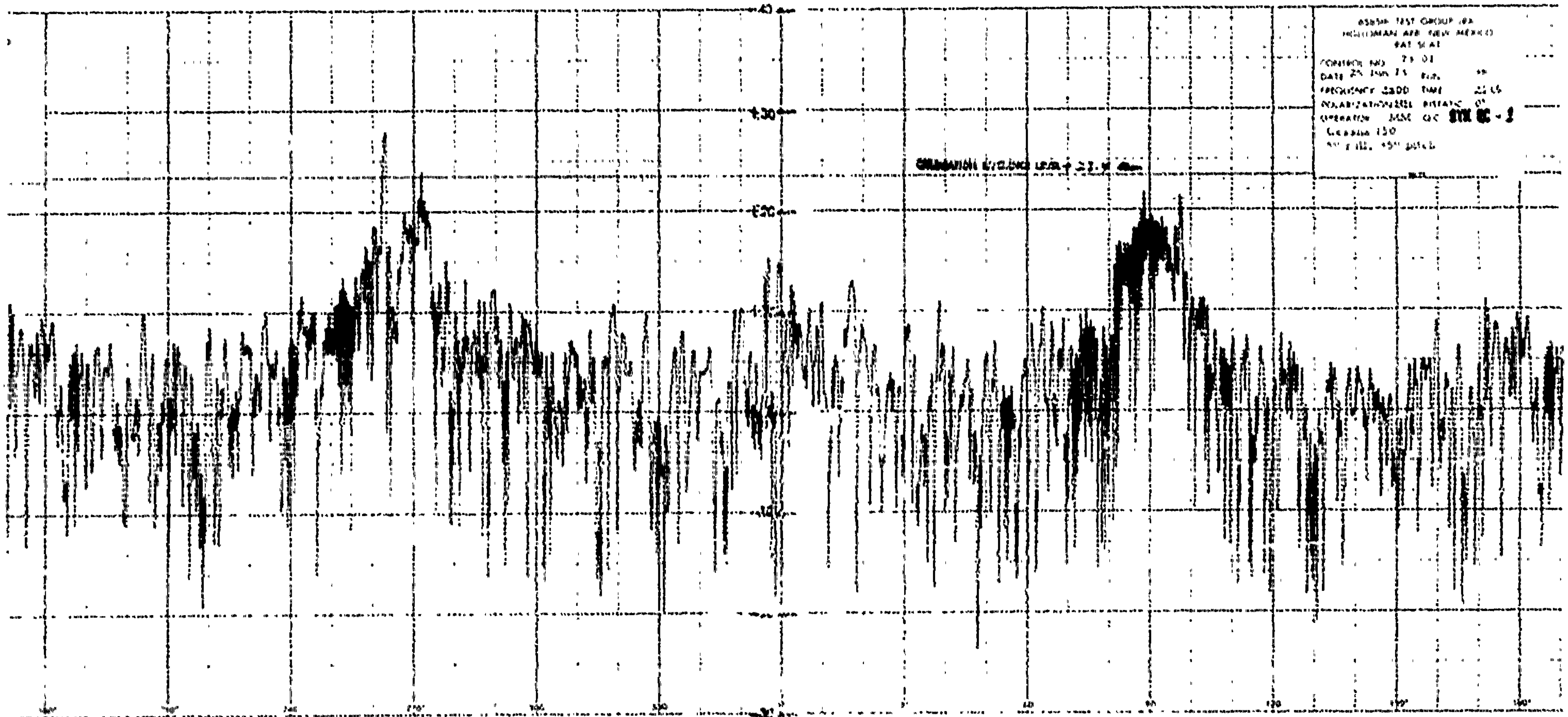


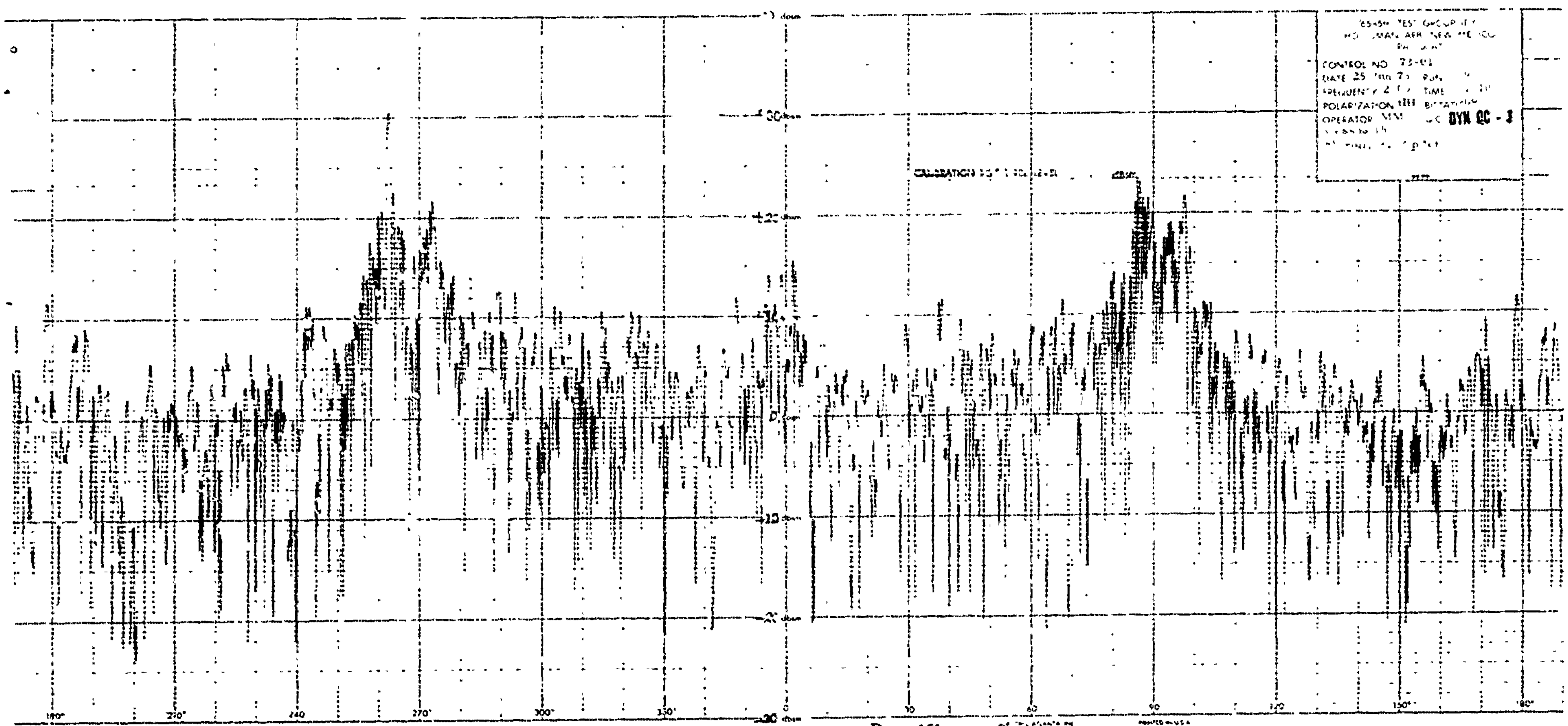
HOLLOMAN AFB NEW MEXICO
CONTROL NO 73-0
DATE Jun 73
FREQUENCY 2500
POLARIZATION
OPERATOR
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240
300
330
0
90
120
150°
180°

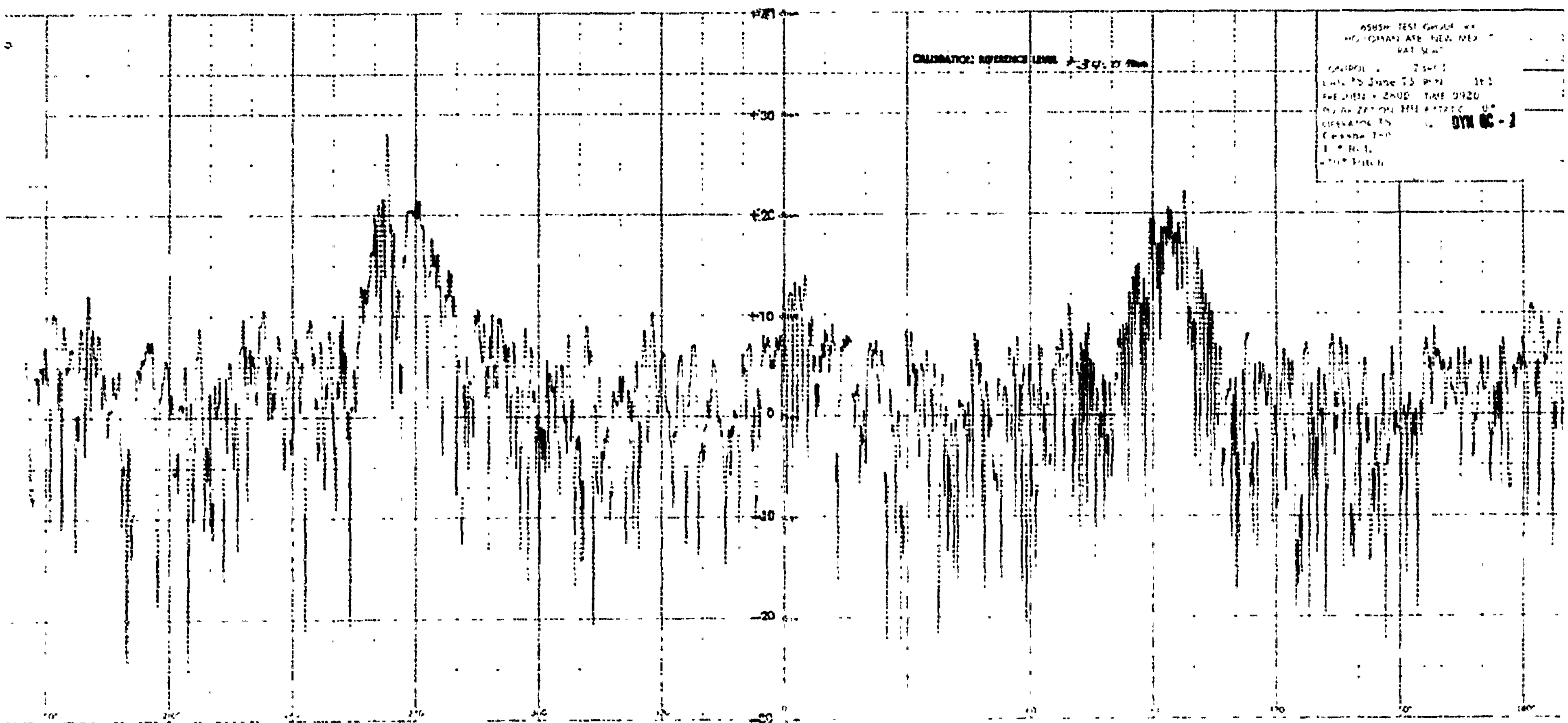

DYN 0C - 1

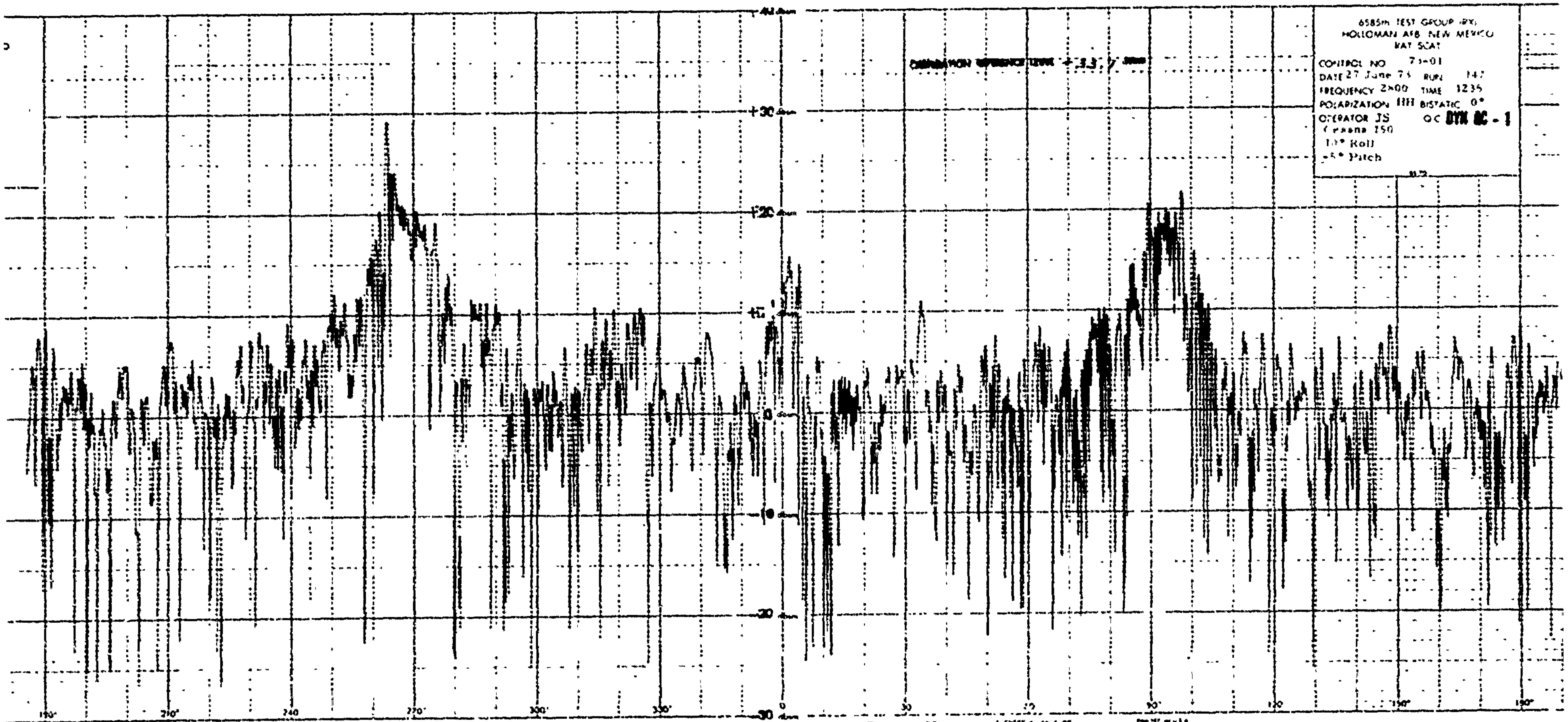

CALIBRATION REFERENCE LEVEL
DATE 26 Jun 73
FREQUENCY 2800
POLARIZATION HH
OPERATOR JS
Cessna 150
TIME 1045
+30
+20
+10
0
-10
-20
-30
270°
240
30°
60
90
120
150°

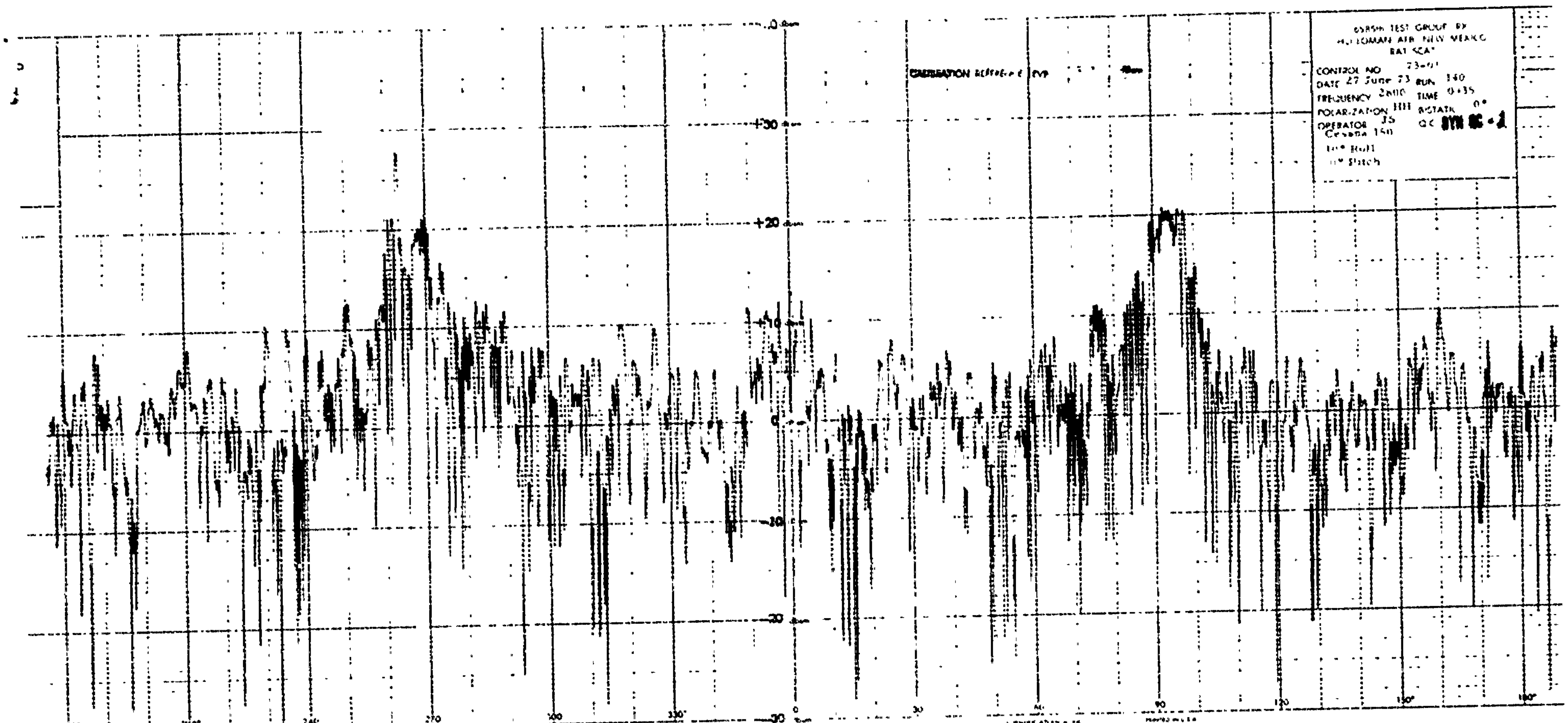


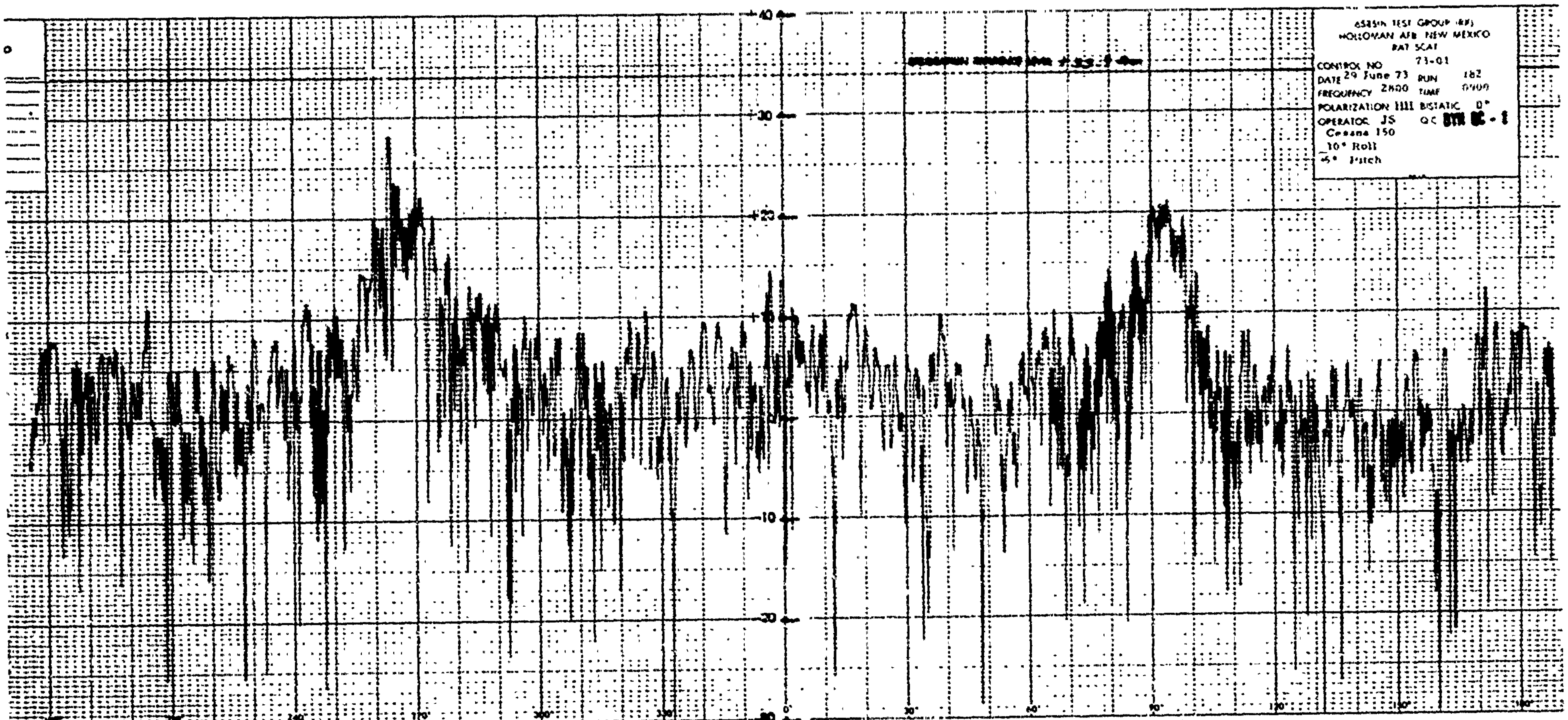


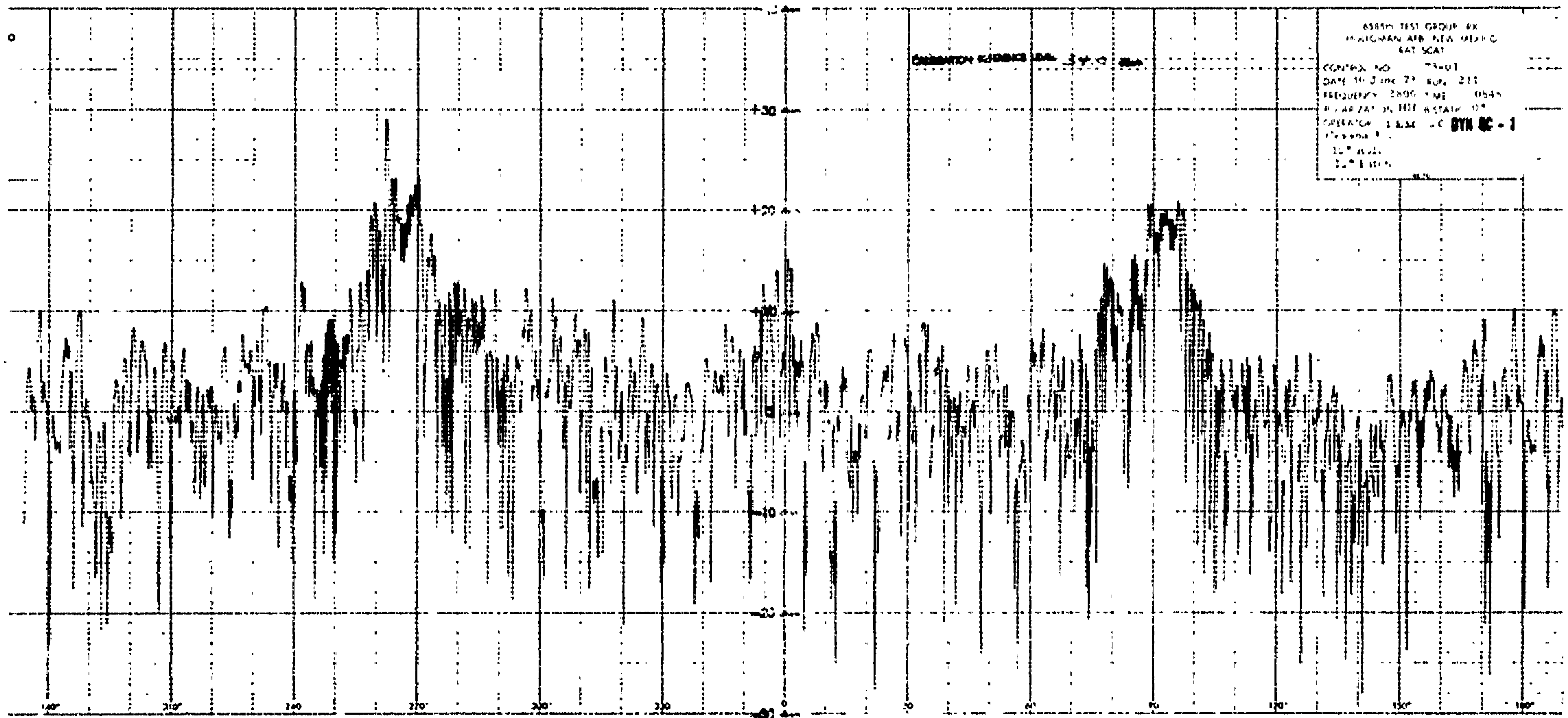

CONTROL NO 73-01
DYN GC - 3
CALIBRATION

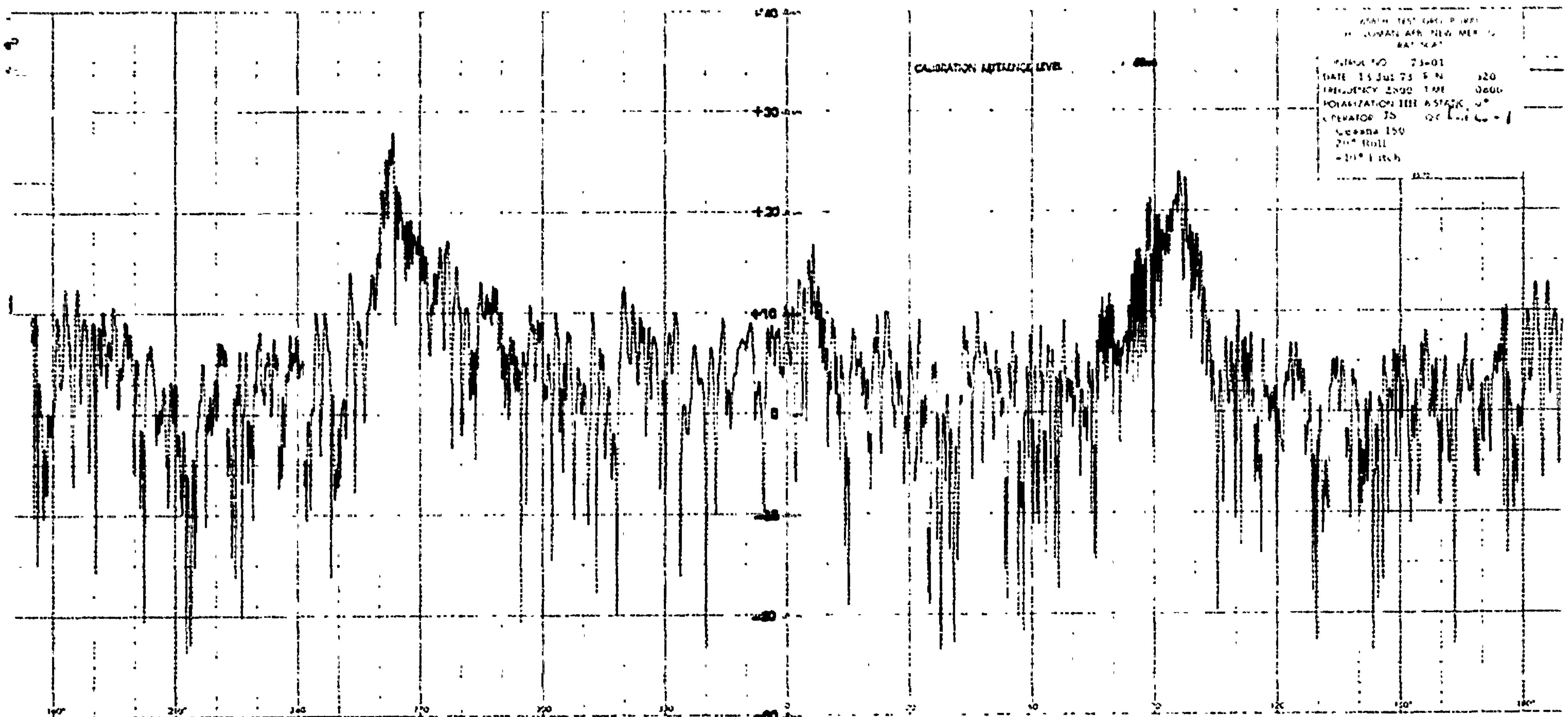

CALIBRATION: REFERENCE LEVEL
DYN GC - 3
+30
+20
+10
0
-10
-20

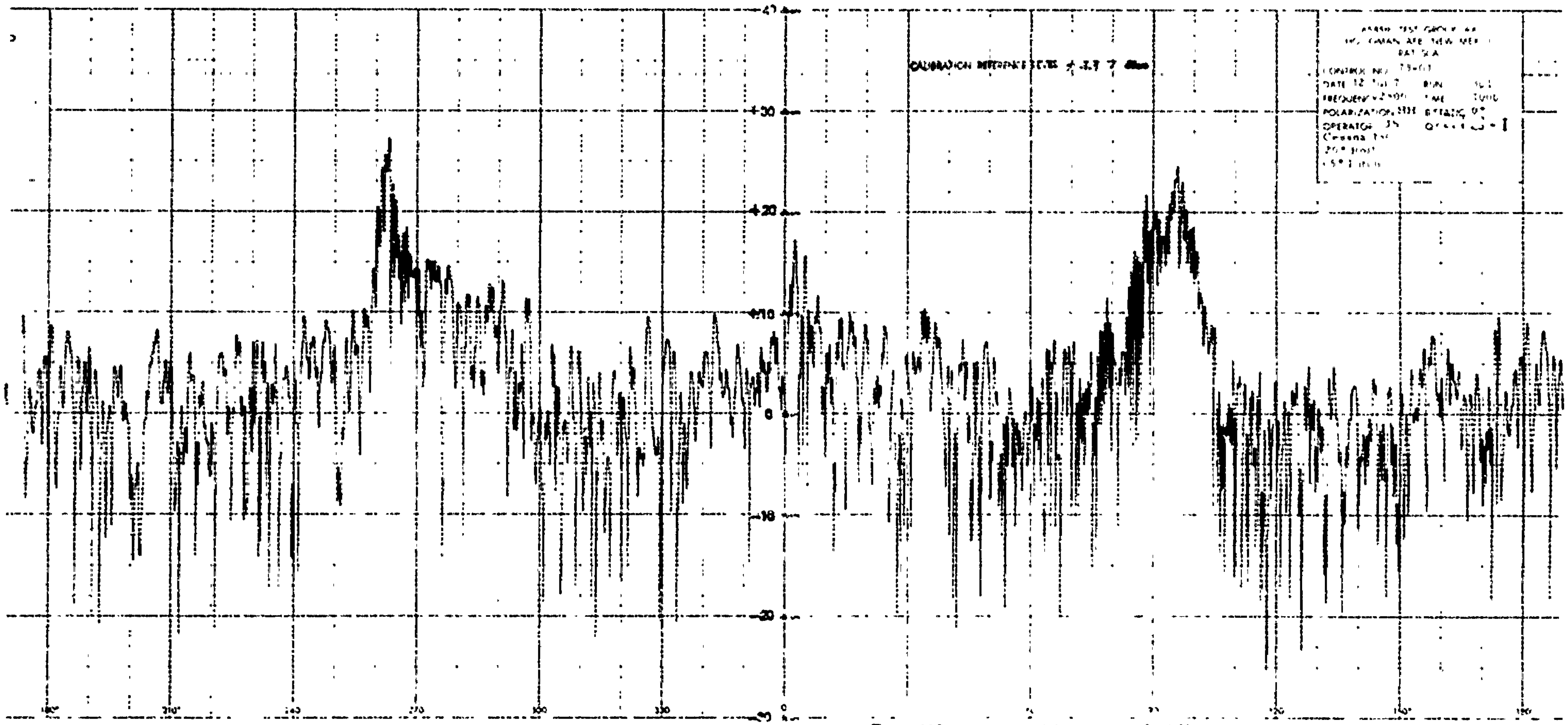

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 27 June 73 RUN 147
FREQUENCY 2800 TIME 1235
POLARIZATION HH BISTATIC 0°
OPERATOR JS QC
Cessna 150
10° Roll
5° Pitch
+40 dbsm
+30 dbsm
+20 dbsm
+10 dbsm
0 dbsm
-10 dbsm
-20 dbsm
-30 dbsm
180°
210°
240
270°
300°
330°
0
30
60
90°
120
150°
180°

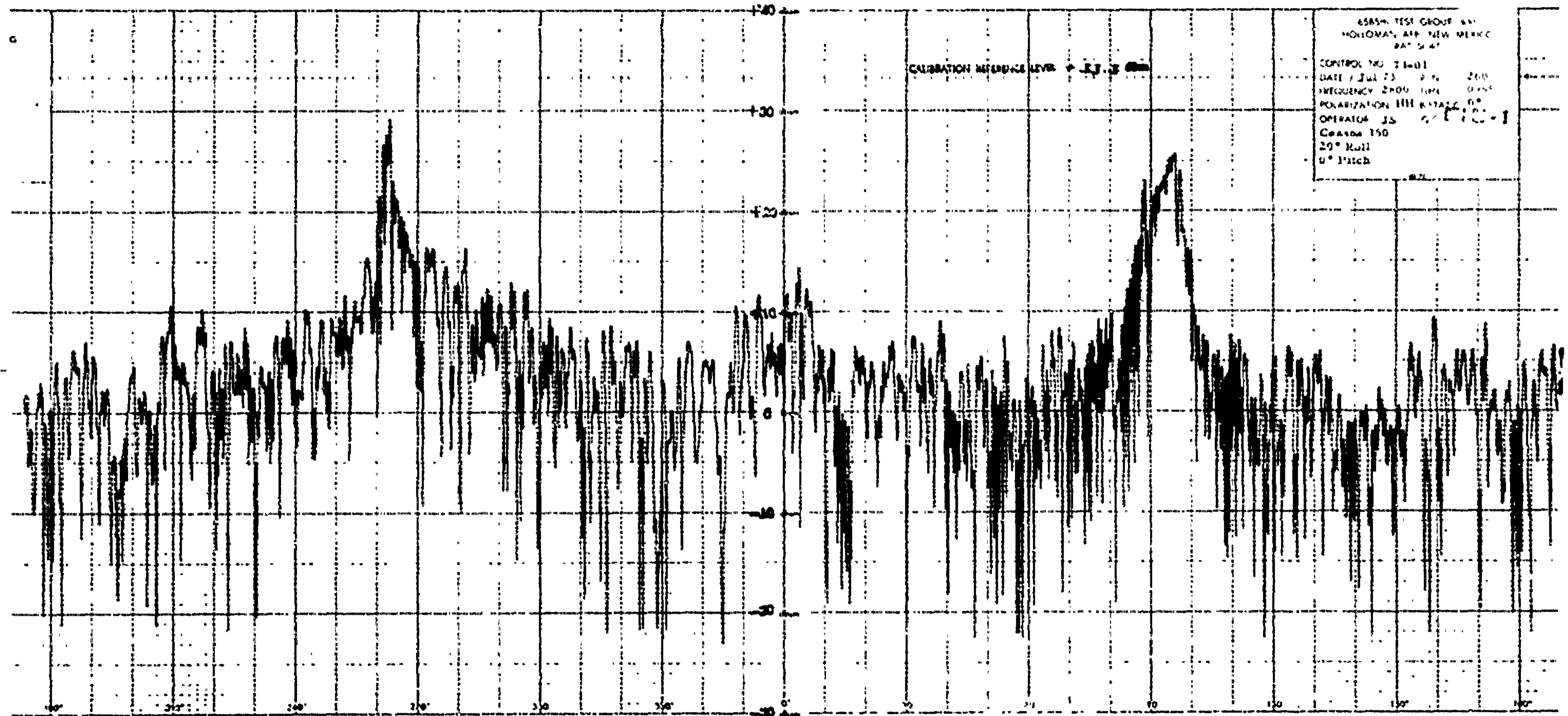

6585th TEST GROUP RX
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 27 June 73 RUN 140
FREQUENCY 2600 TIME 0+35
POLARIZATION HH BISTATIC 0°
OPERATOR 35 QC
Cessna 150
10° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-30
180°
210°
240
270
300
330°
0
30
60
90
120
150°
180°

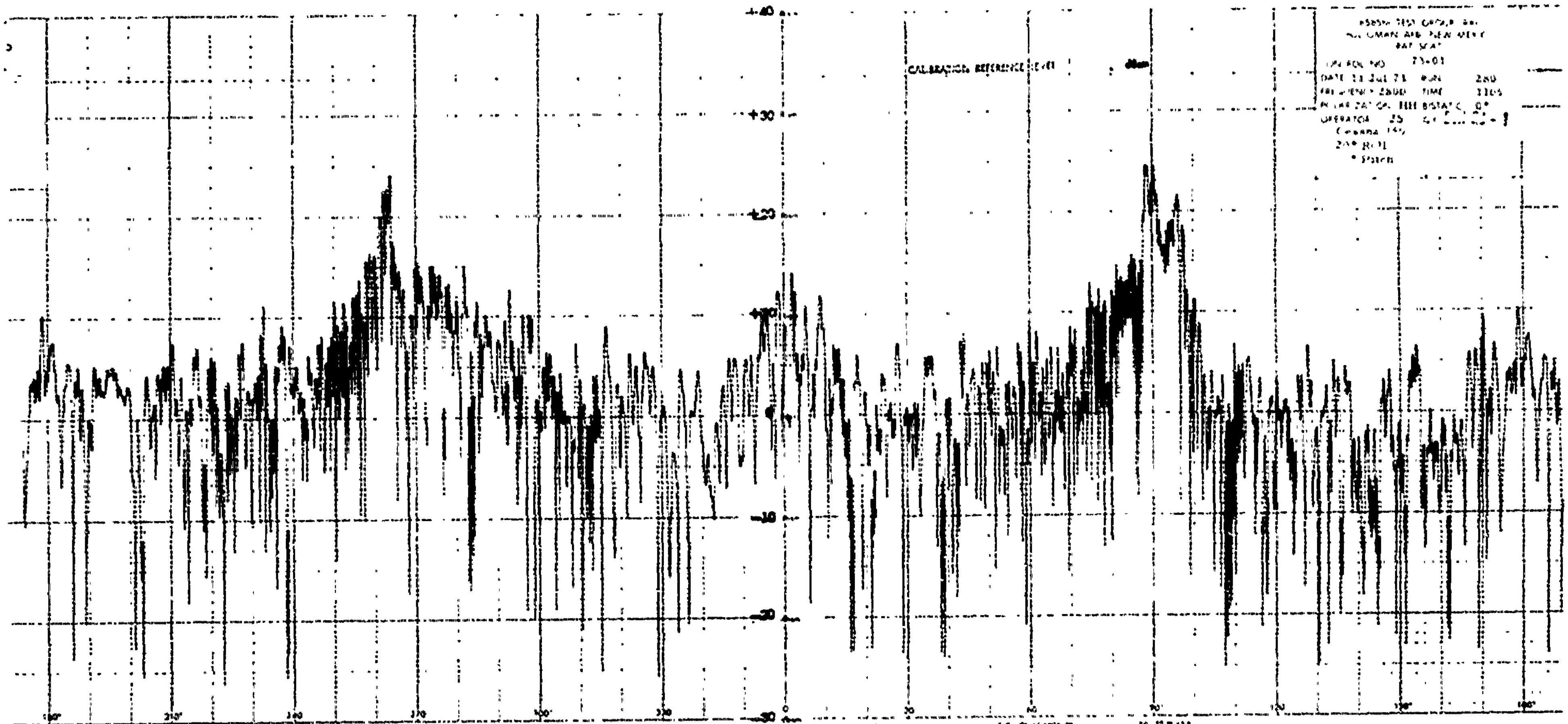

6585th TEST GROUP (RF)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 29 June 73 RUN 182
FREQUENCY 2800 TIME 0900
POLARIZATION IIII BISTATIC 0°
OPERATOR JS
Cessna 150
10° Roll
5° Pitch
+40
+30
+20
+10
-10
-20
0°
30°
60°
90°
120°
150°
180°
240°
270°
300°
330°

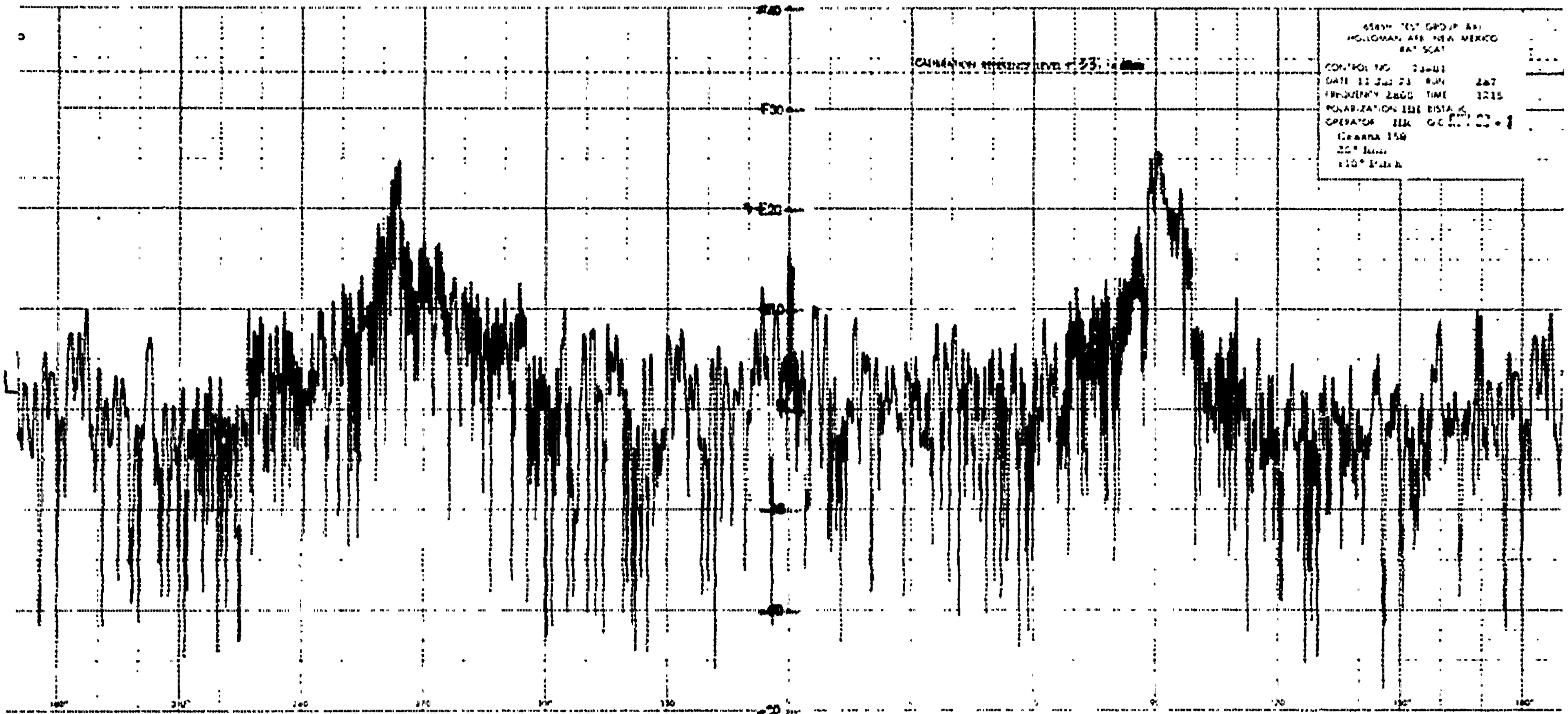

DYN SC - 1
+30
+20
+10
0
-10
-20
180°
210°
240
270°
300°
330
0
30
60
90
120°
150°
180°

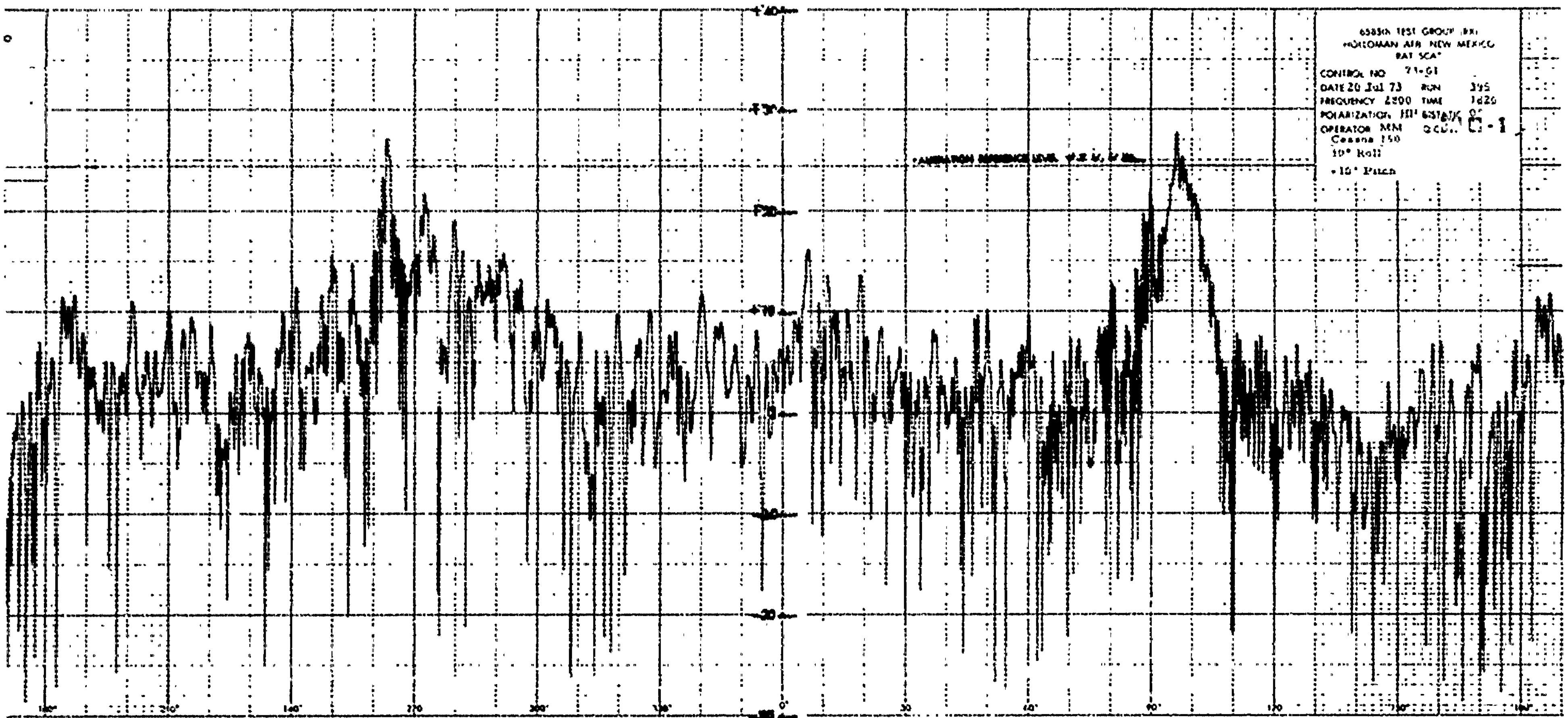

CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
DATE 15 Jul 73
POLARIZATION
Cessna 150
Roll

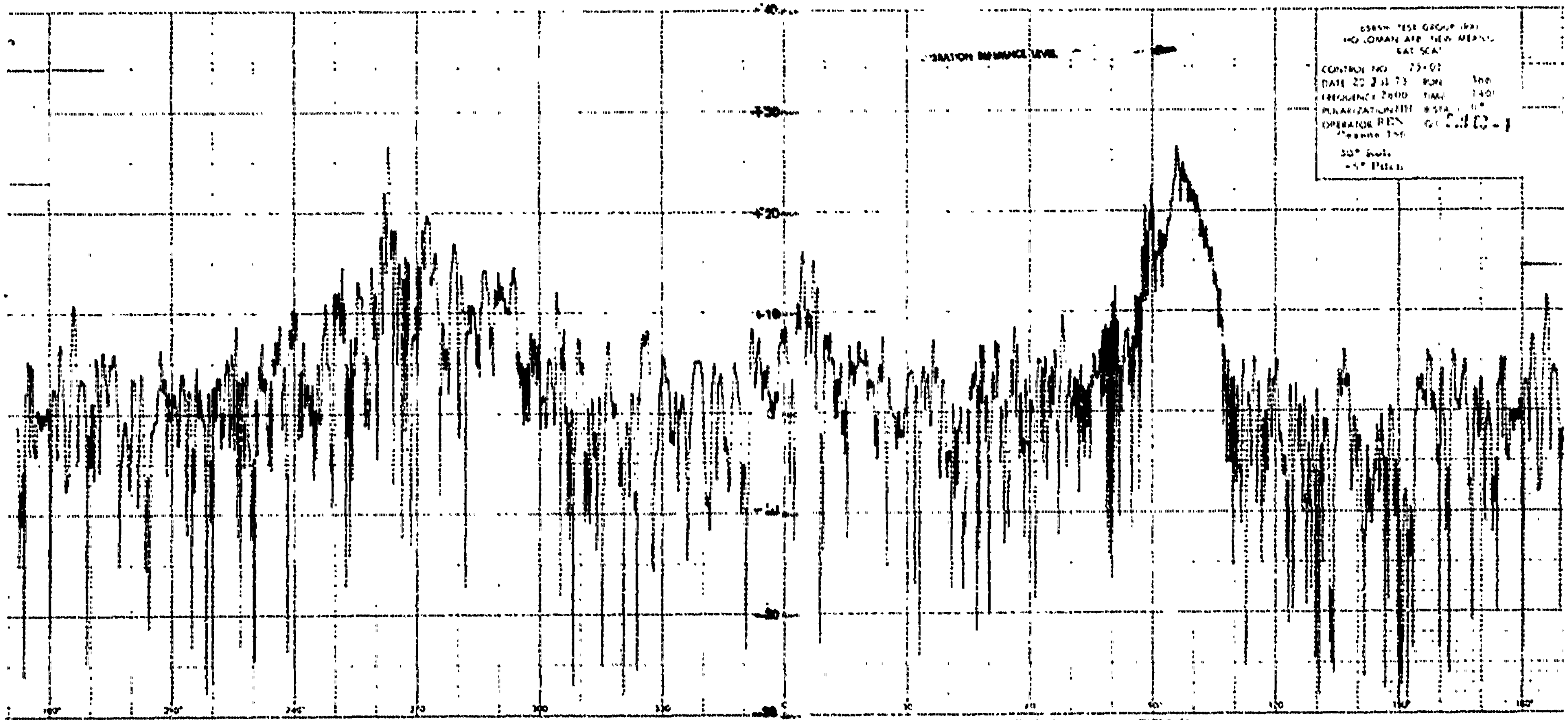

+30
+20
+10
0
-10
-20
180°
210°
270
300
330
0
120
150°

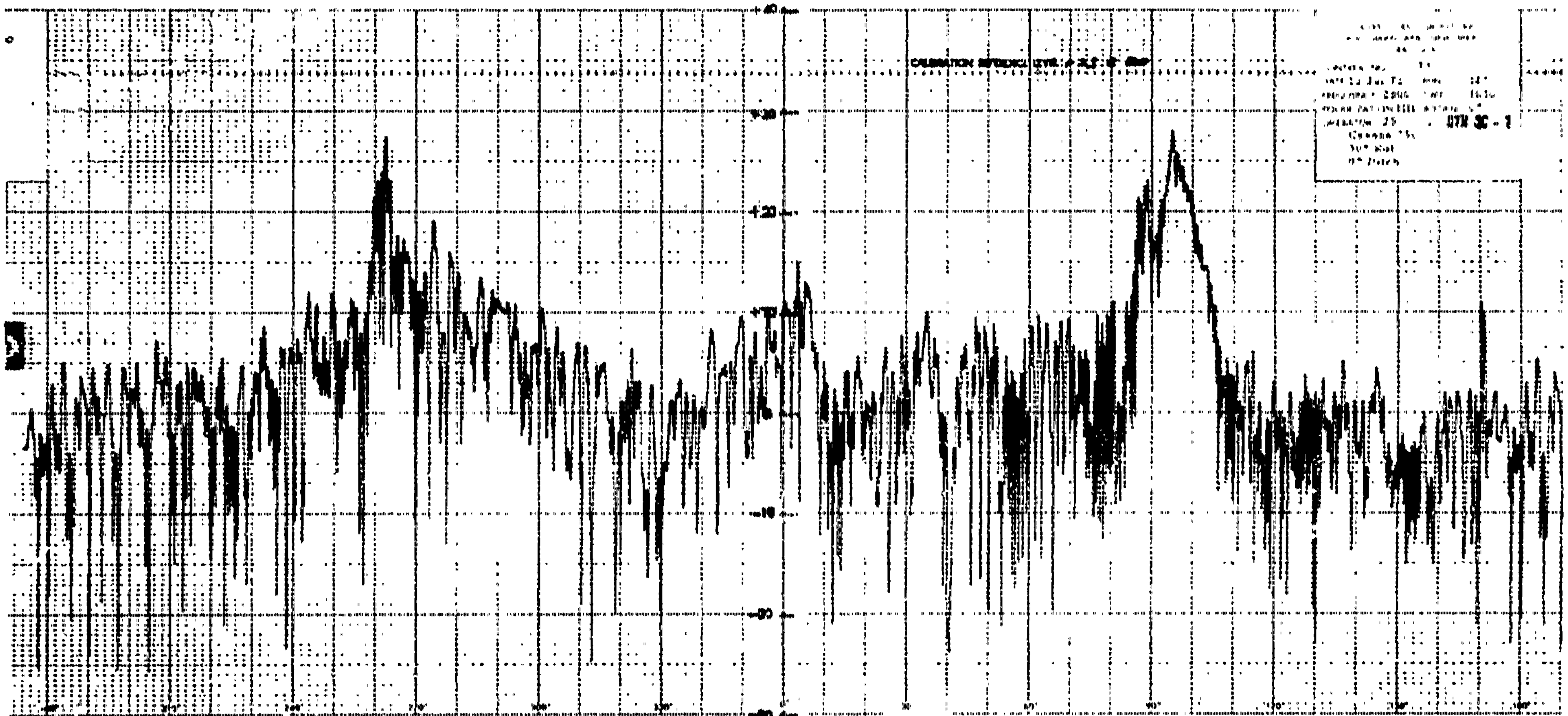

6585th TEST GROUP
HOLLOMAN AFB, NEW MEXICO
CONTROL NO.
DATE
FREQUENCY 2800
POLARIZATION
OPERATOR
Cessna 150
20° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30


CALIBRATION REFERENCE LEVEL
73-01
+40
+30
+20
+10
0
-10
-20
-30

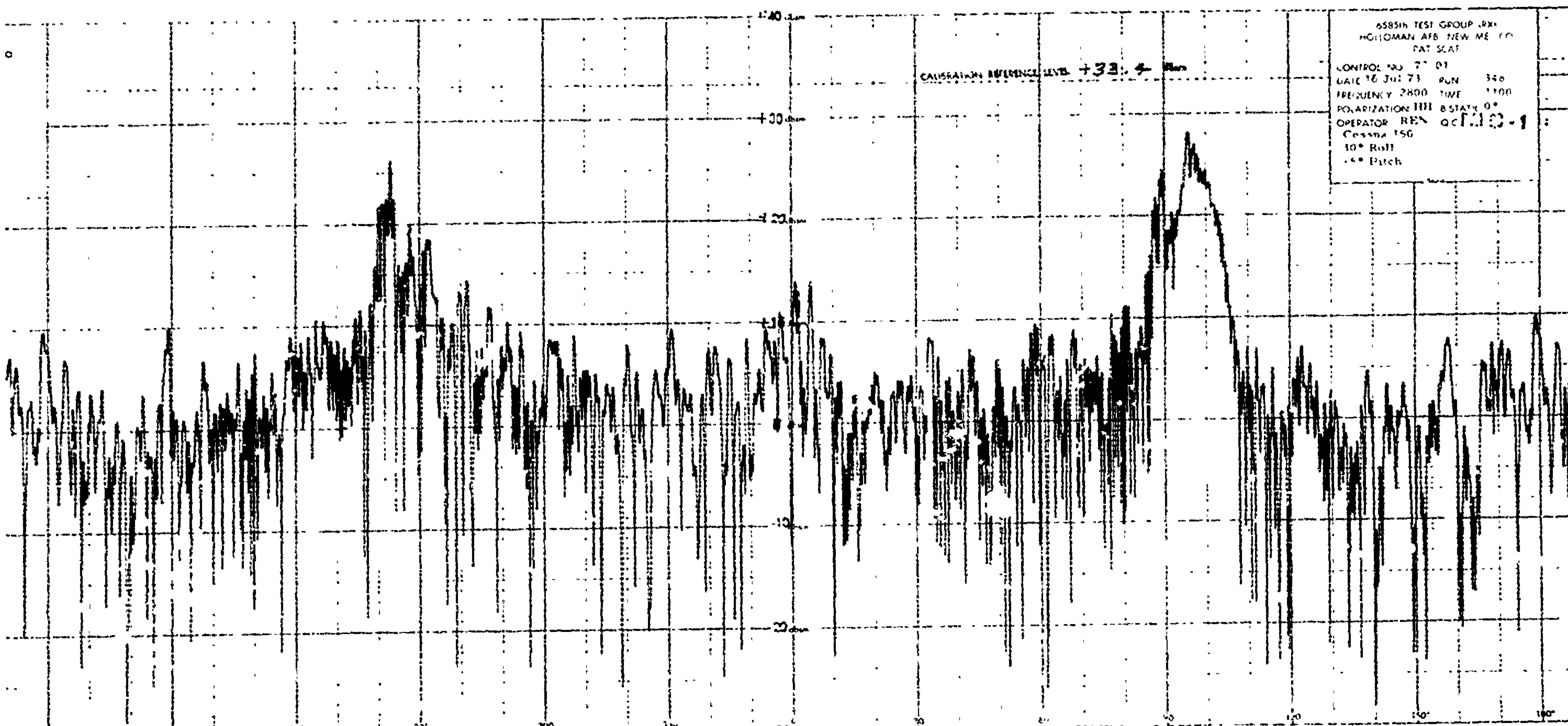


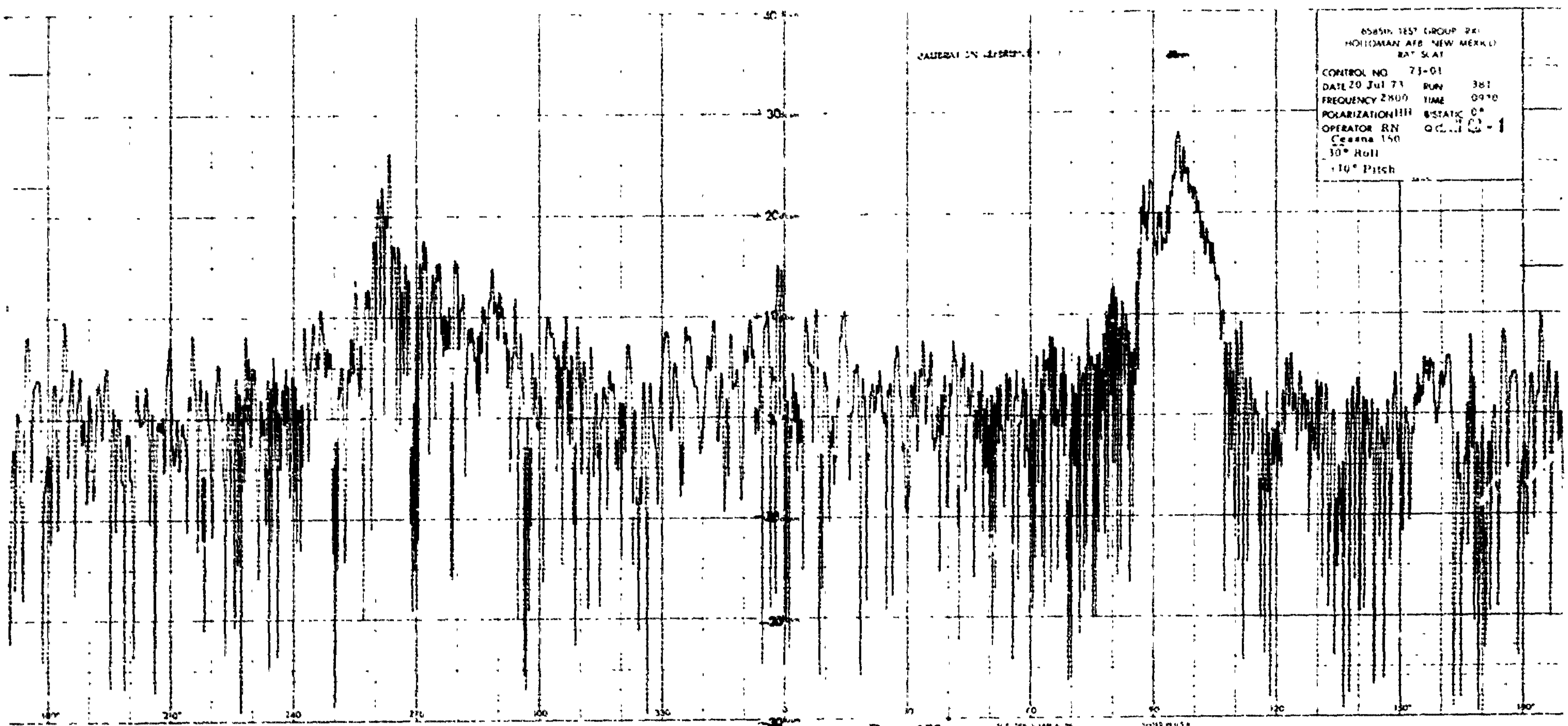

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-61
DATE 20 Jul 73 RUN 395
FREQUENCY 4200 TIME 1d20
POLARIZATION HH BISTATIC 0°
OPERATOR MN OCU.. C-1
Cessna 150
10° Roll
+10° Pitch
+40
+30
+20
+10
0
-10
-20
180°
210°
240°
270
300°
330°
0°
30
60°
90°
120
150°
180°



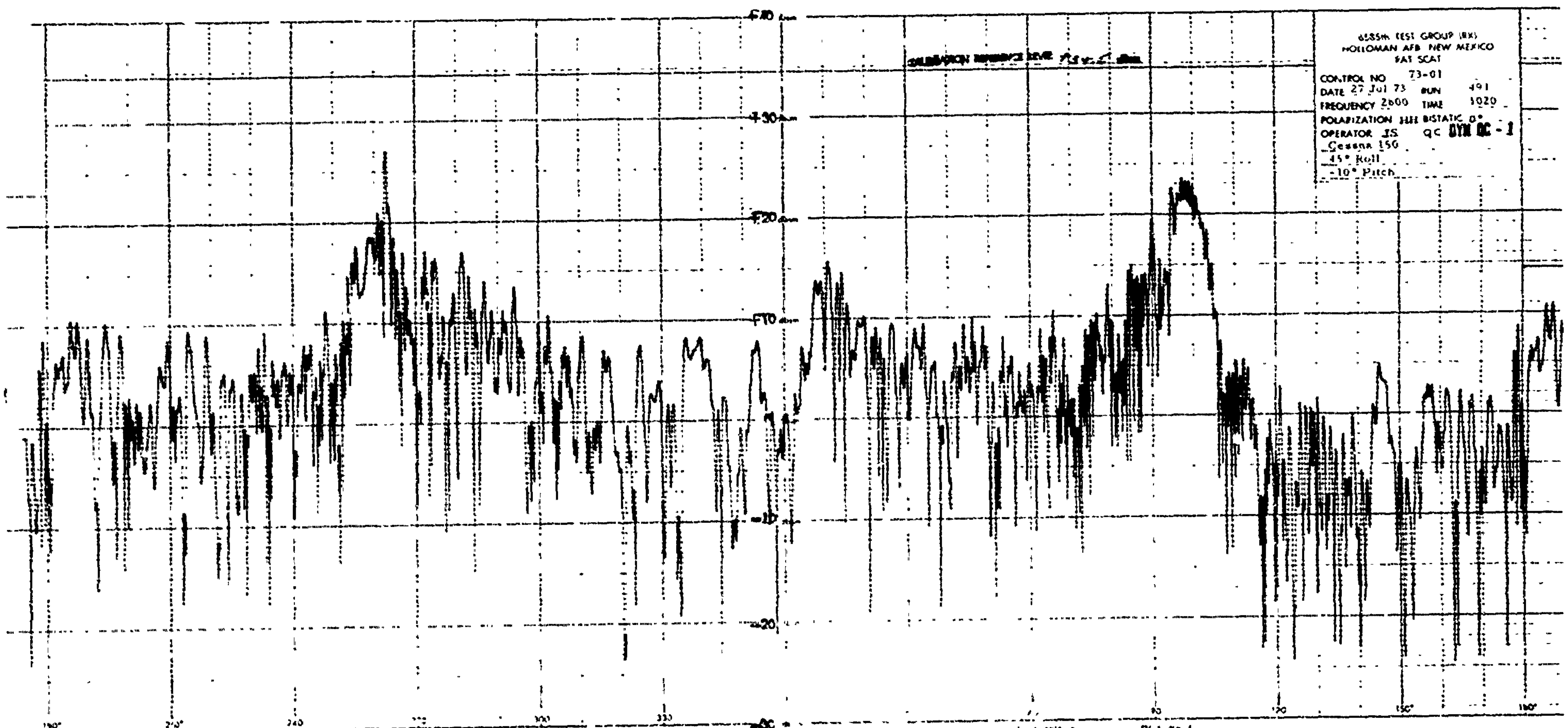


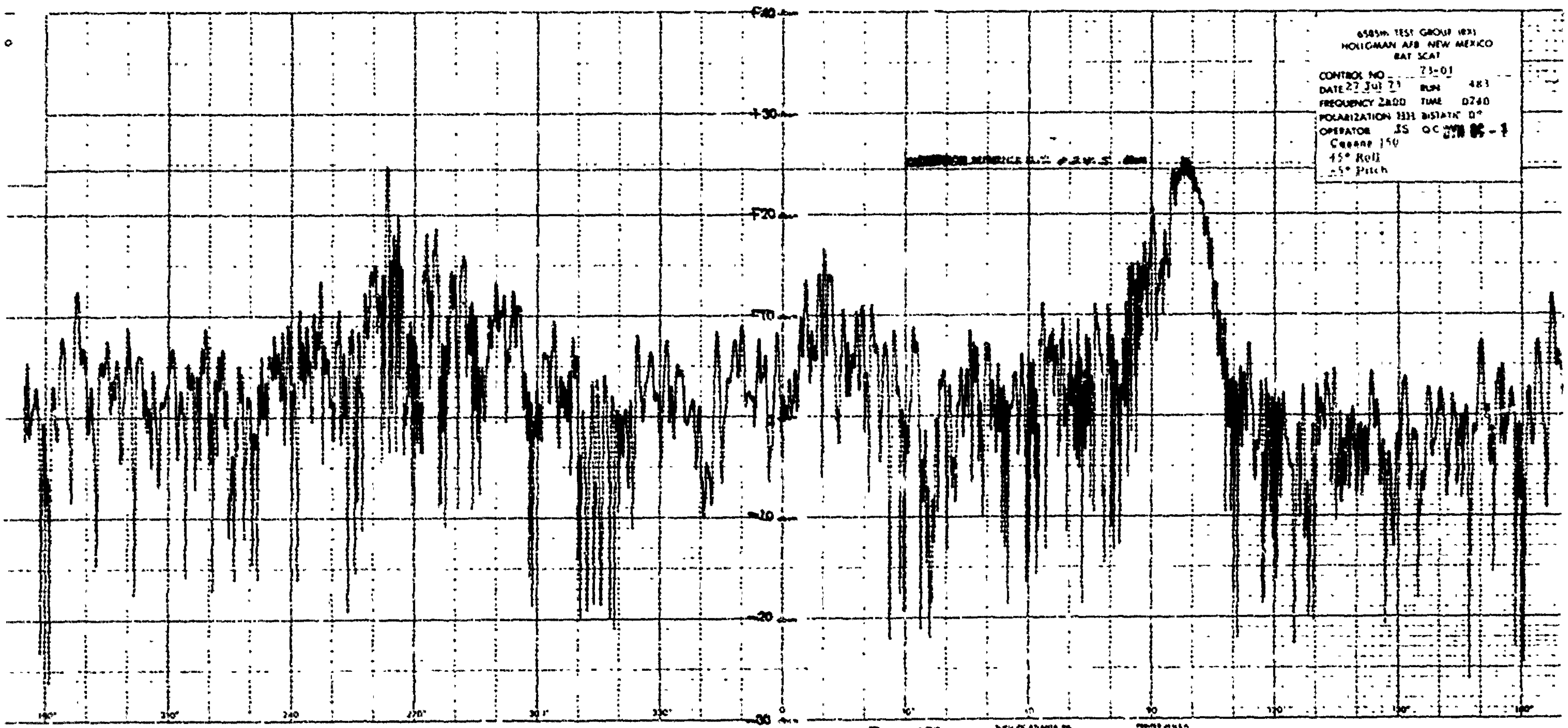
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30
BTR 3C - 1

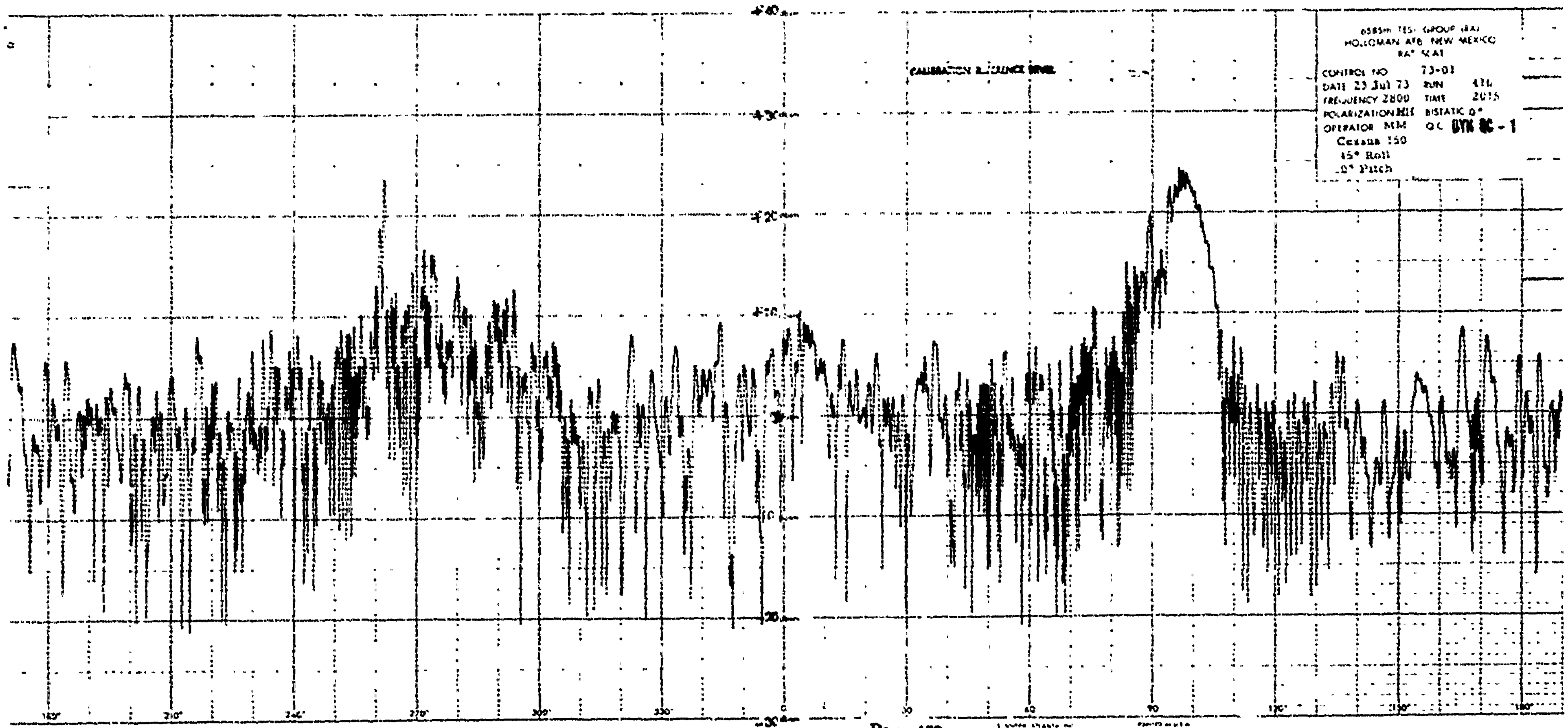

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
PAT SCAT
CONTROL NO
DATE 16 Jul 73
RUN
FREQUENCY 2800
TIME
POLARIZATION HH
OPERATOR REN
Cessna 150
30° Roll
Pitch
CALIBRATION REFERENCE LEVEL +33.4
+40
+30
+20
+10
10
20
30
180°
210°
240
270
300
330
0
30
60
90
120
150°
180°

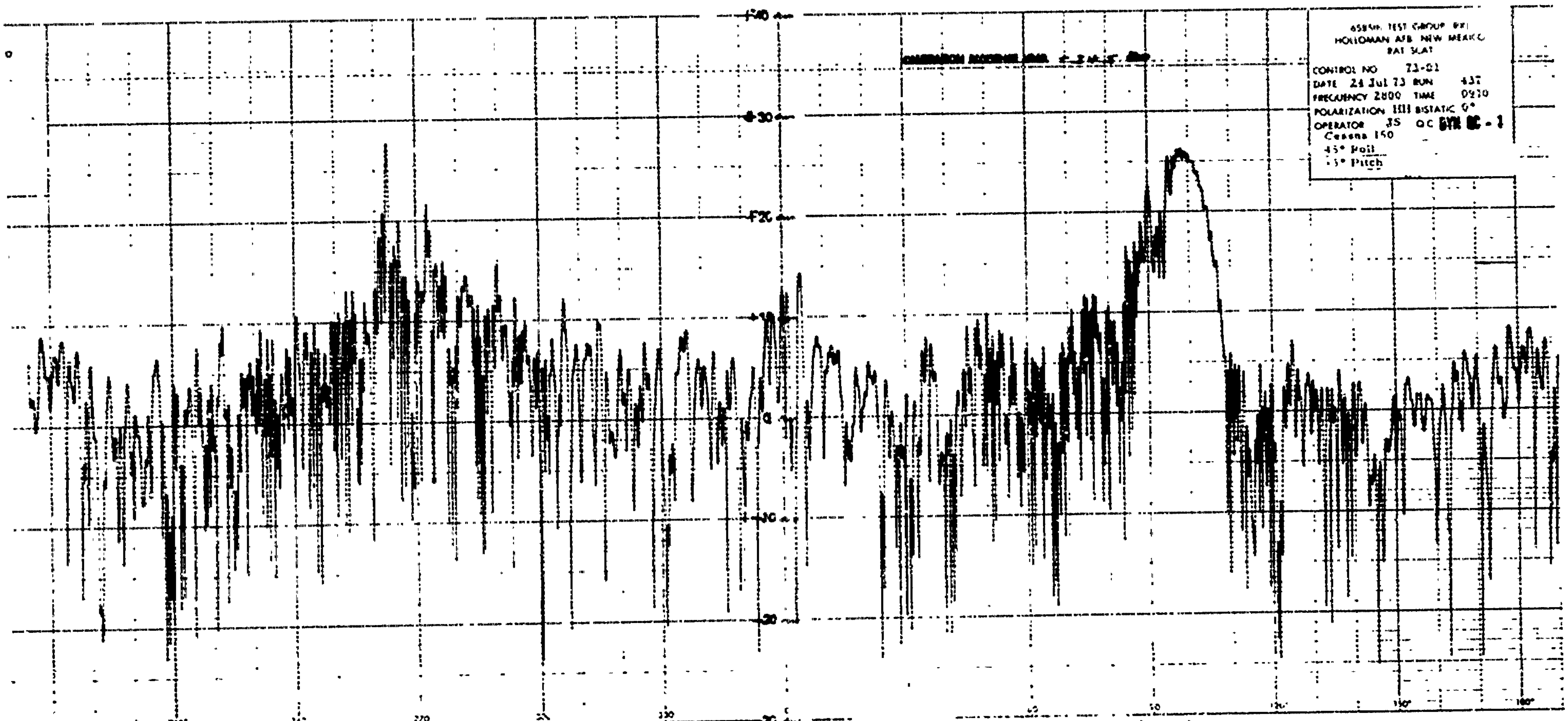


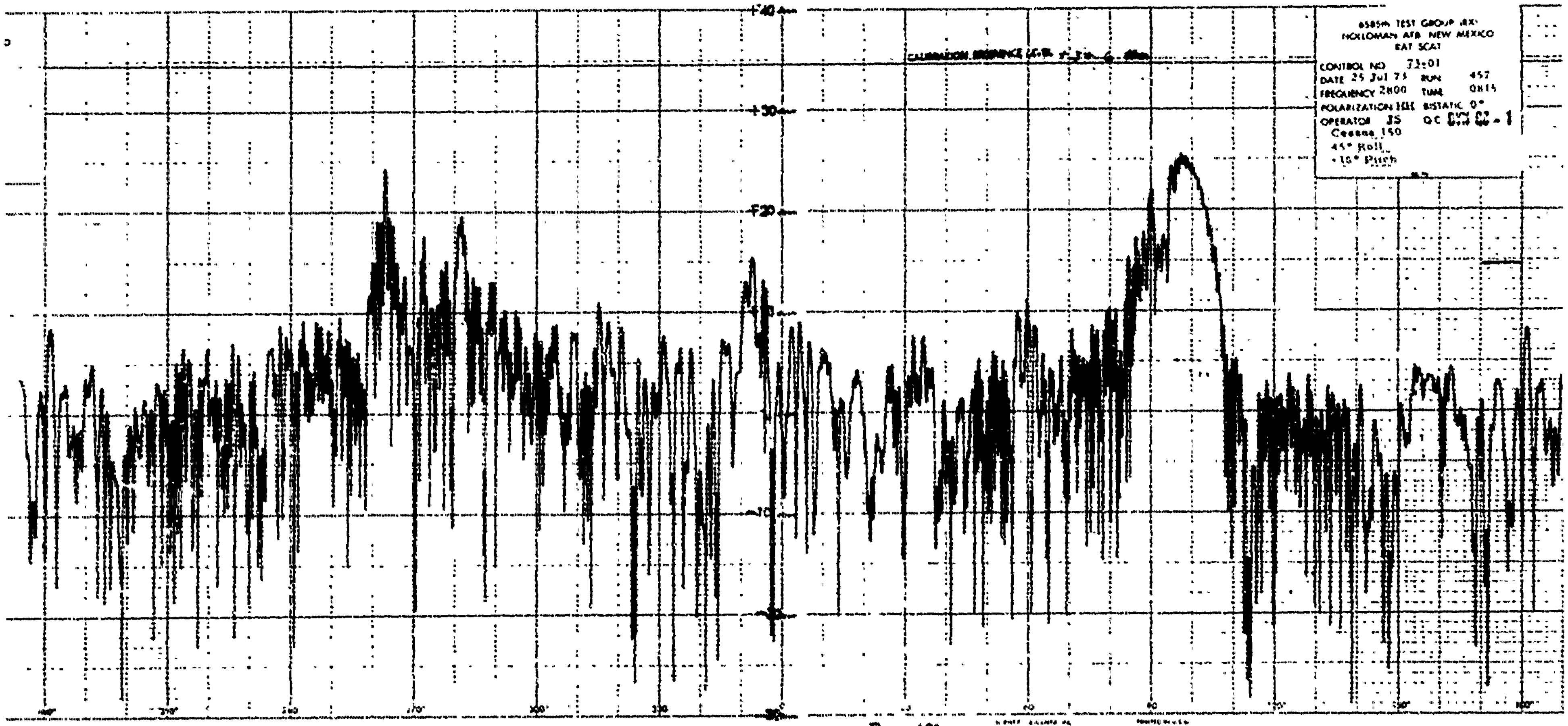
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 381
FREQUENCY 2800 TIME 0910
POLARIZATION HH BISTATIC 0°
OPERATOR RN
Cessna 150
30° Roll
+10° Pitch

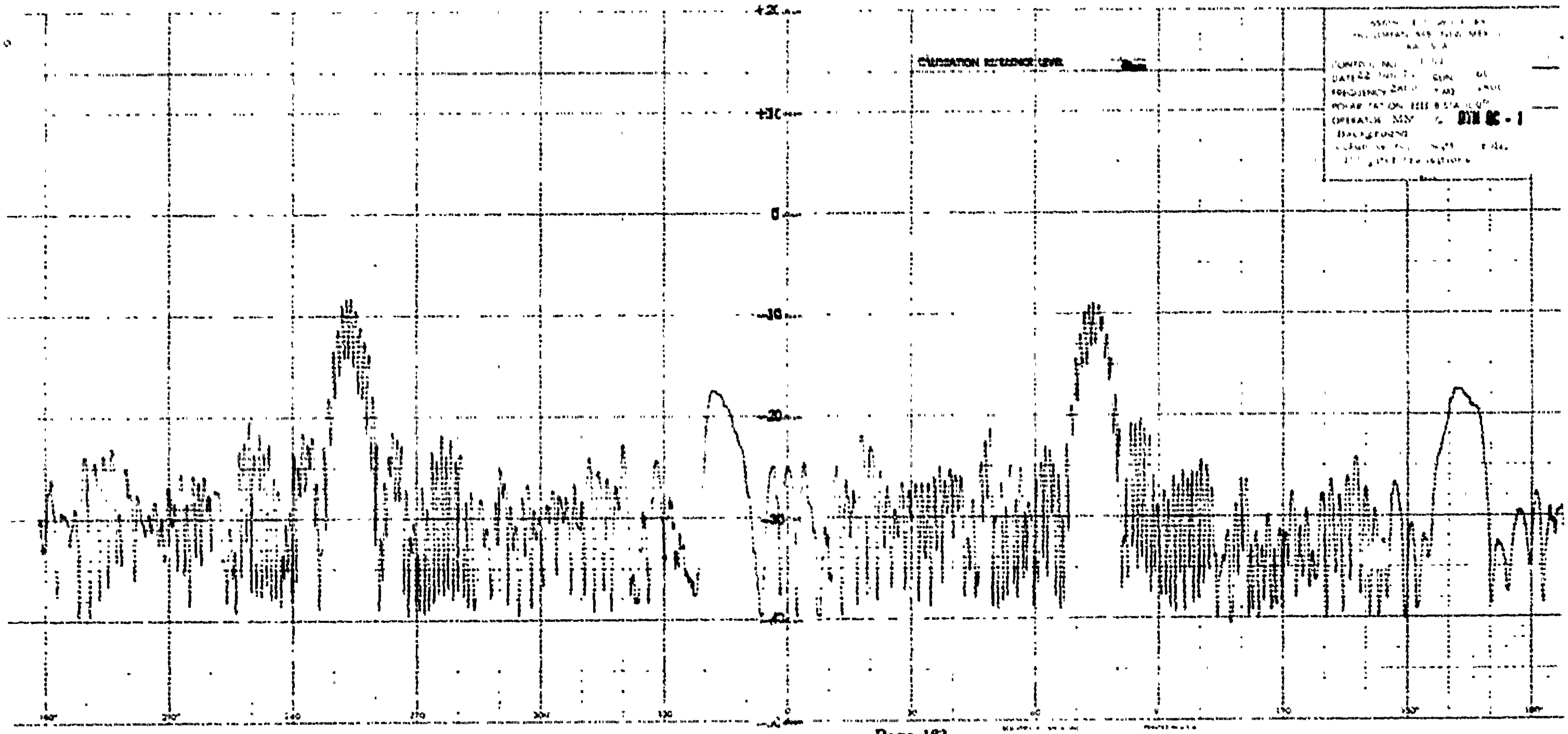

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 27 Jul 73 RUN 491
FREQUENCY 2600 TIME 1020
POLARIZATION HH BISTATIC 0°
OPERATOR JS QC DYN DC - 1
Cessna 150
45° Roll
-10° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240
270
300
330
90
120
150°
180°

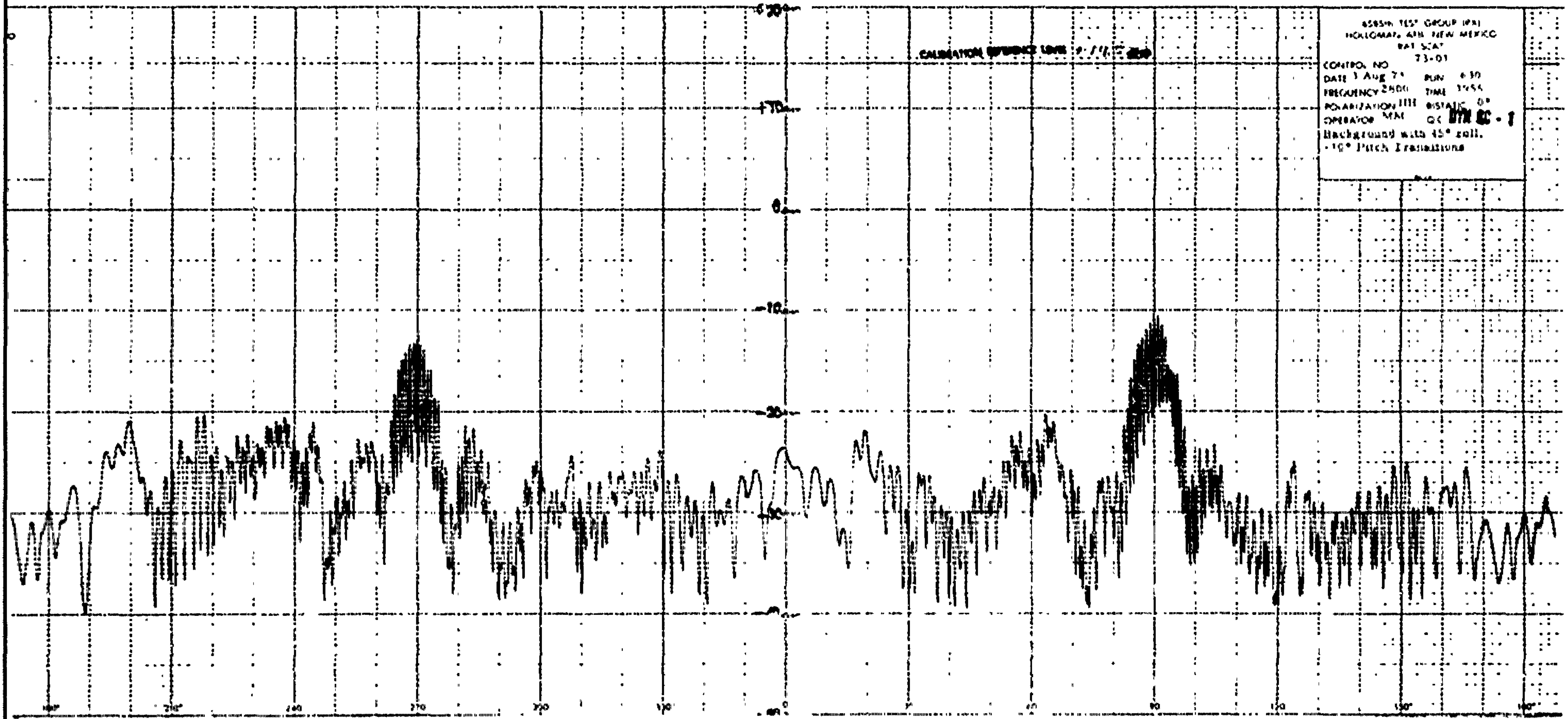

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 27 Jul 73 RUN 483
FREQUENCY 2800 TIME 0740
POLARIZATION BISTATIC 0°
OPERATOR JS QC
Cessna 150
45° Roll
5° Pitch
+40
+30
+20
+10
0
-10
-20
-30

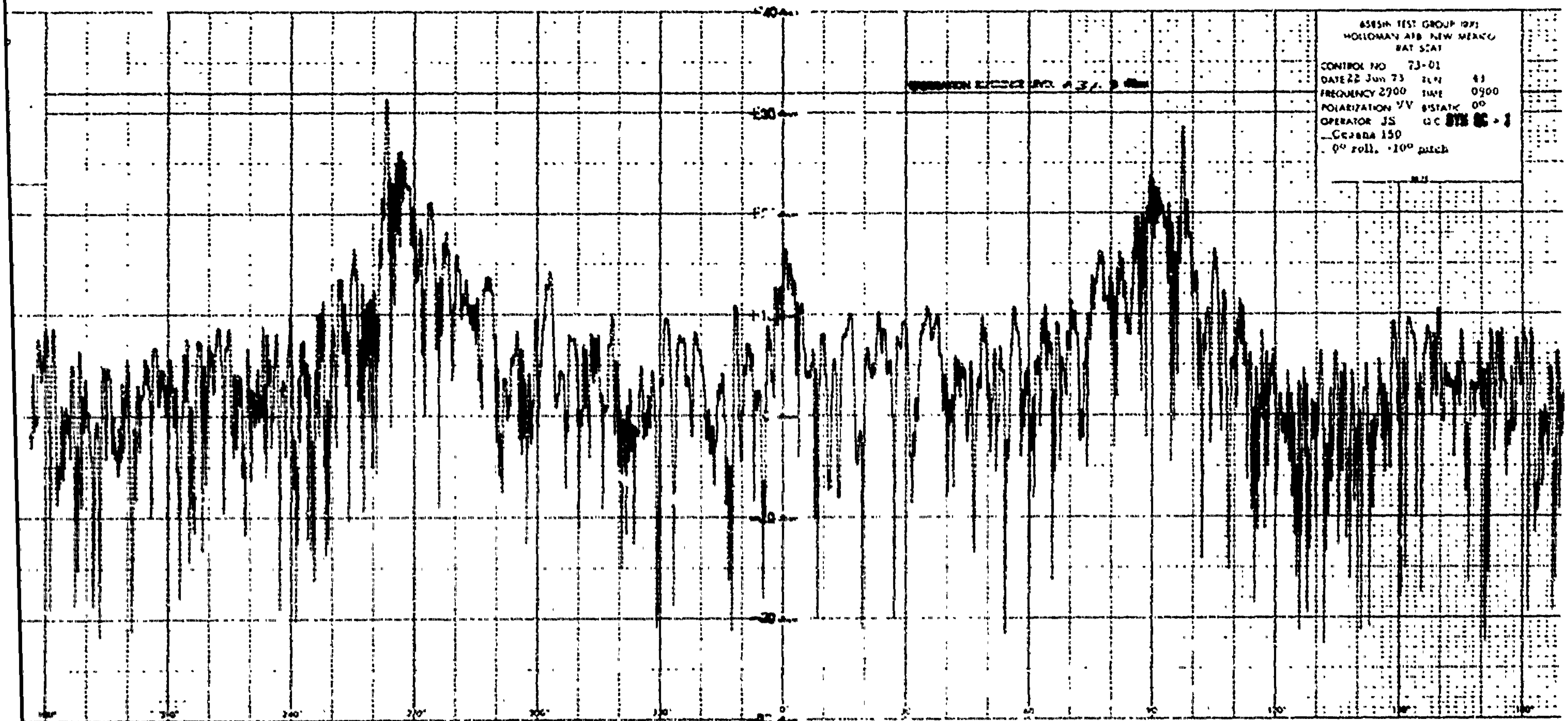

6585th TEST GROUP (RA)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 23 Jul 73
RUN 416
FREQUENCY 2800
TIME 2015
POLARIZATION HH
BISTATIC 0°
OPERATOR MM
Cessna 150
45° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
10
20
-30
180°
210°
240°
270°
300°
330°
0
30
60
90
120°
150°
180°

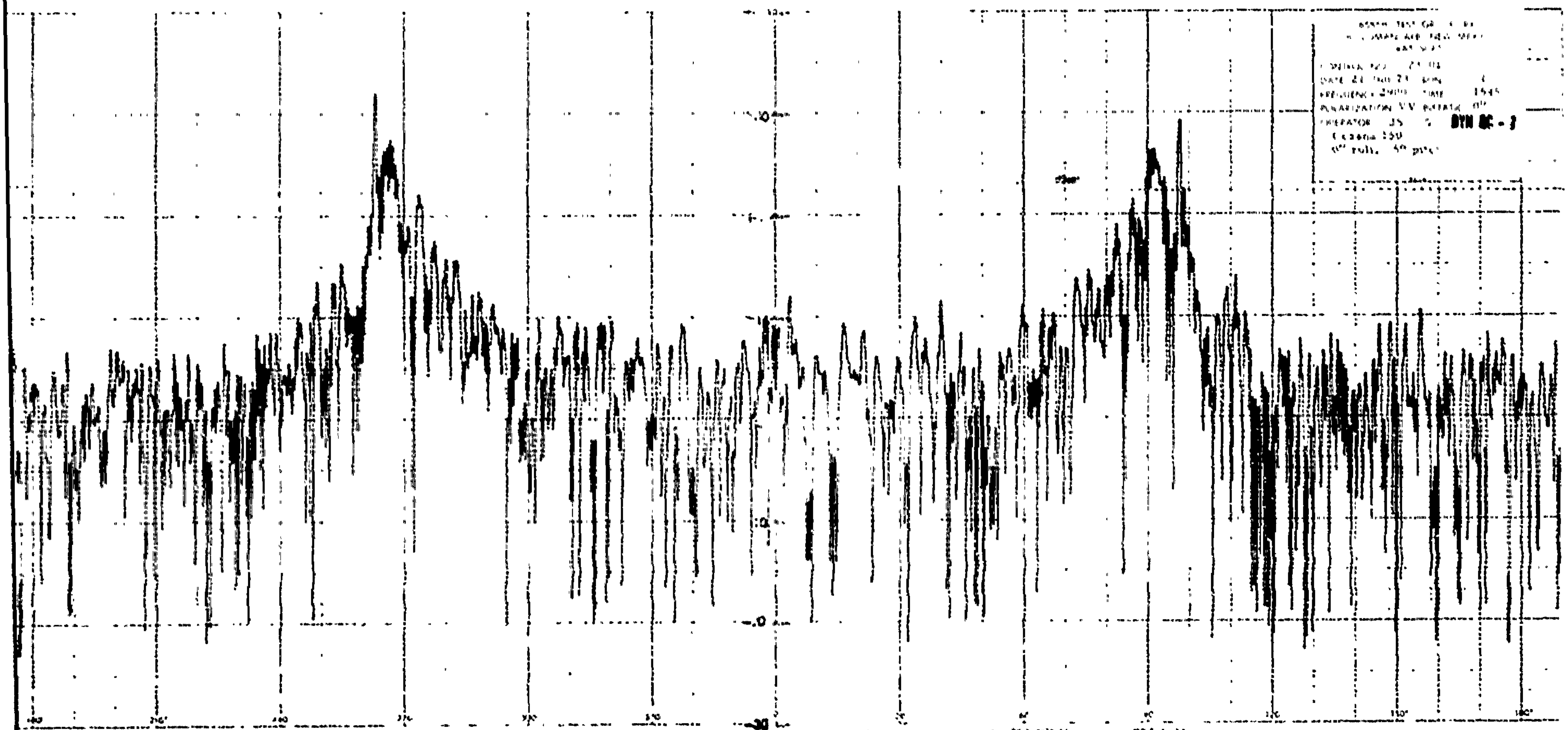

[redacted]
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 24 Jul 73 RUN 437
FREQUENCY 2800 TIME 0930
POLARIZATION HH BISTATIC 0°
OPERATOR JS QC [redacted]
Cessna 150
45° Roll
±5° Pitch

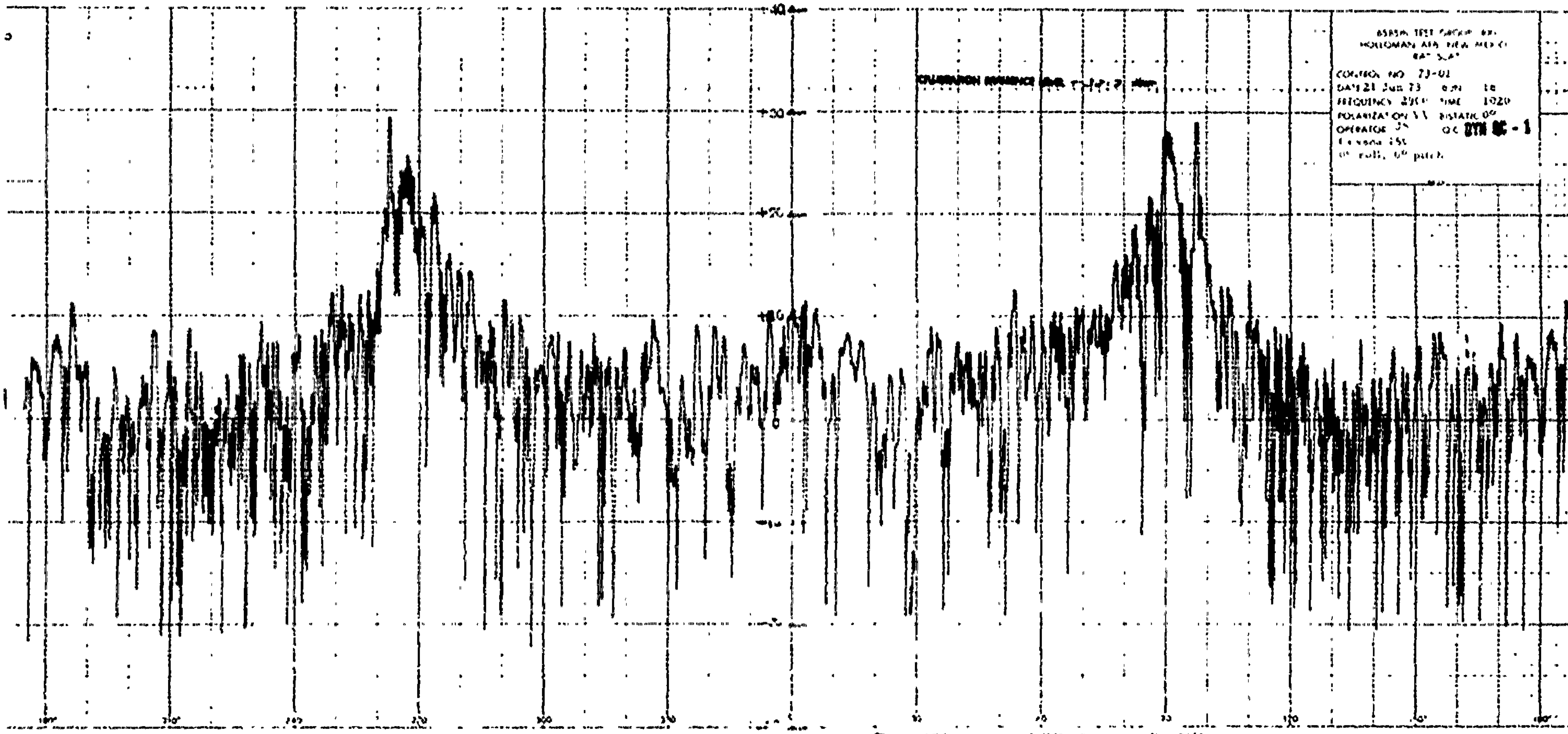

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jul 73 RUN 457
FREQUENCY 2800 TIME 0815
POLARIZATION
BISTATIC 0°
OPERATOR JS
Cessna 150
45° Roll
+15° Pitch
CALIBRATION REFERENCE
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240
270°
300°
330
0
30
60
90
120°
150°
180°

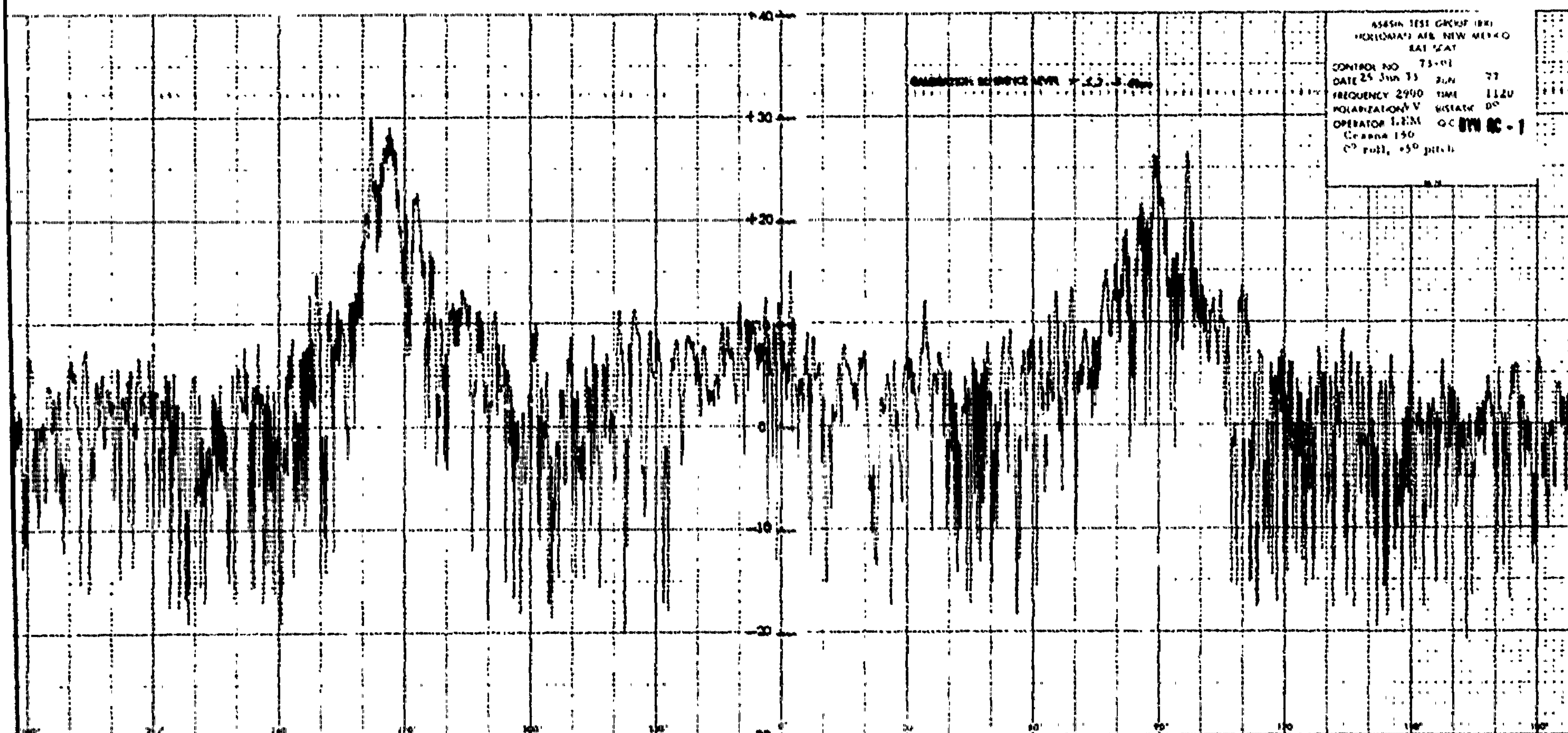

CALIBRATION REFERENCE LEVEL
+20
+10
0
-10
-20
-30
-40

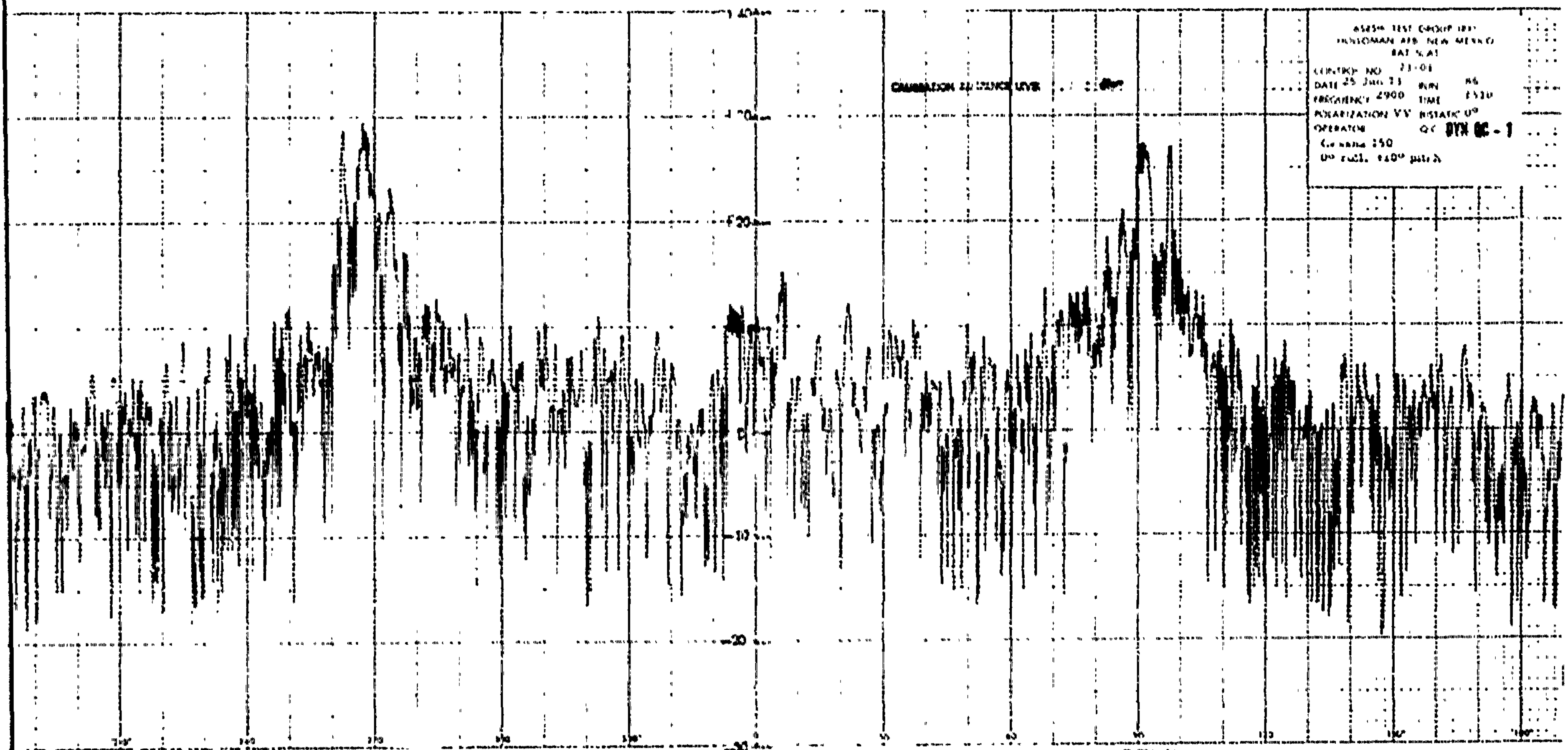

CALIBRATION REFERENCE LEVEL
RAT SCAT
73-01
CONTROL NO
DATE 3 Aug 73 RUN 630
FREQUENCY 2800 TIME
POLARIZATION BISTATIC 0°
OPERATOR QC
Background with 45° roll,
-10° Pitch Transitions
+20
+10
0
-10
-20
-30
-40
180°
210°
240
270
300
330
0
30
60
90
120
150°
180°

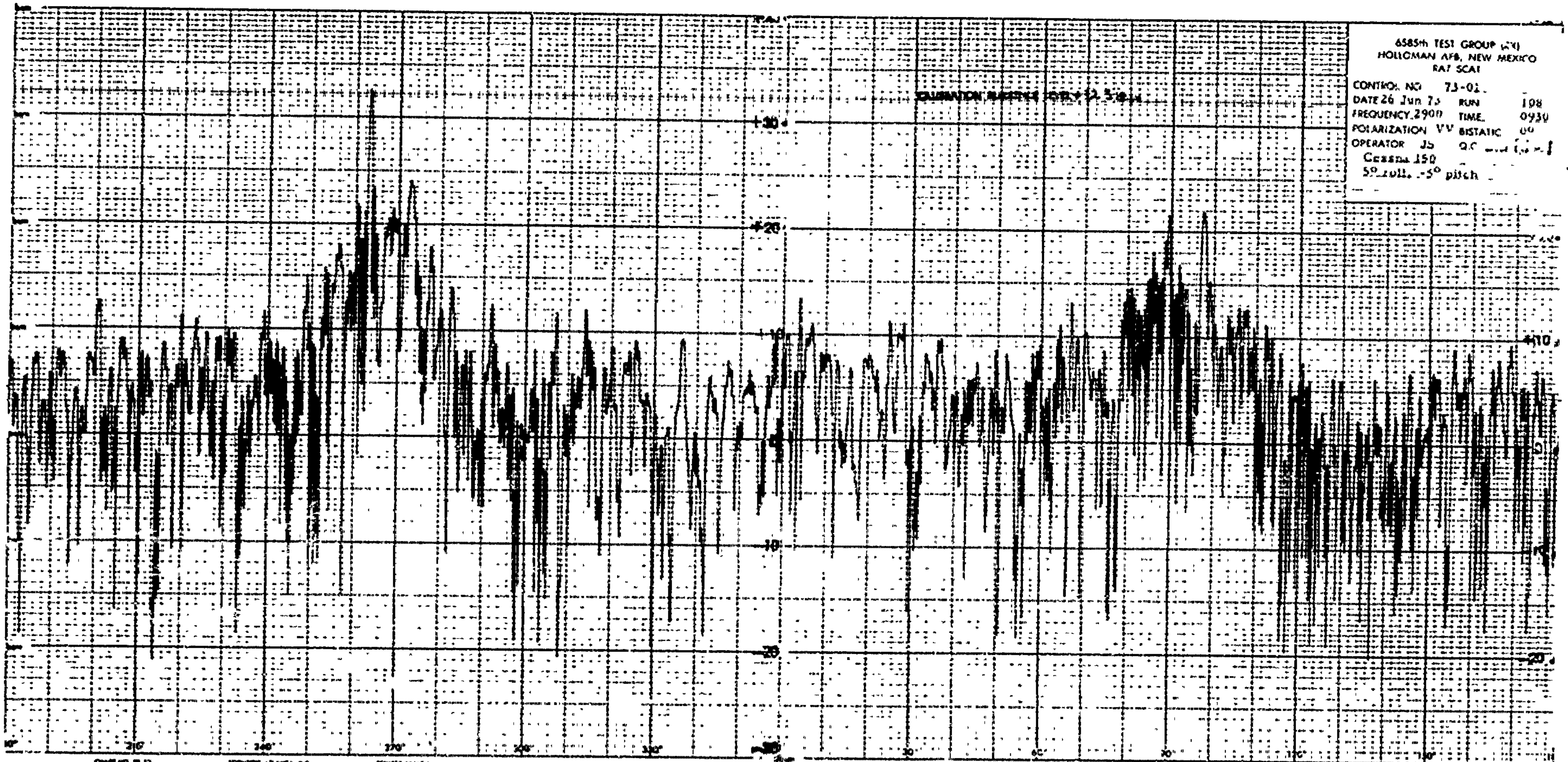

6585th TEST GROUP (RTS)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 22 Jun 73
RUN 41
FREQUENCY 2900
TIME 0900
POLARIZATION VV
BISTATIC 0°
OPERATOR JS
GC [redacted]
Cessna 150
0° roll, +10° pitch
+40
+30
+10
0
-10
-20
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

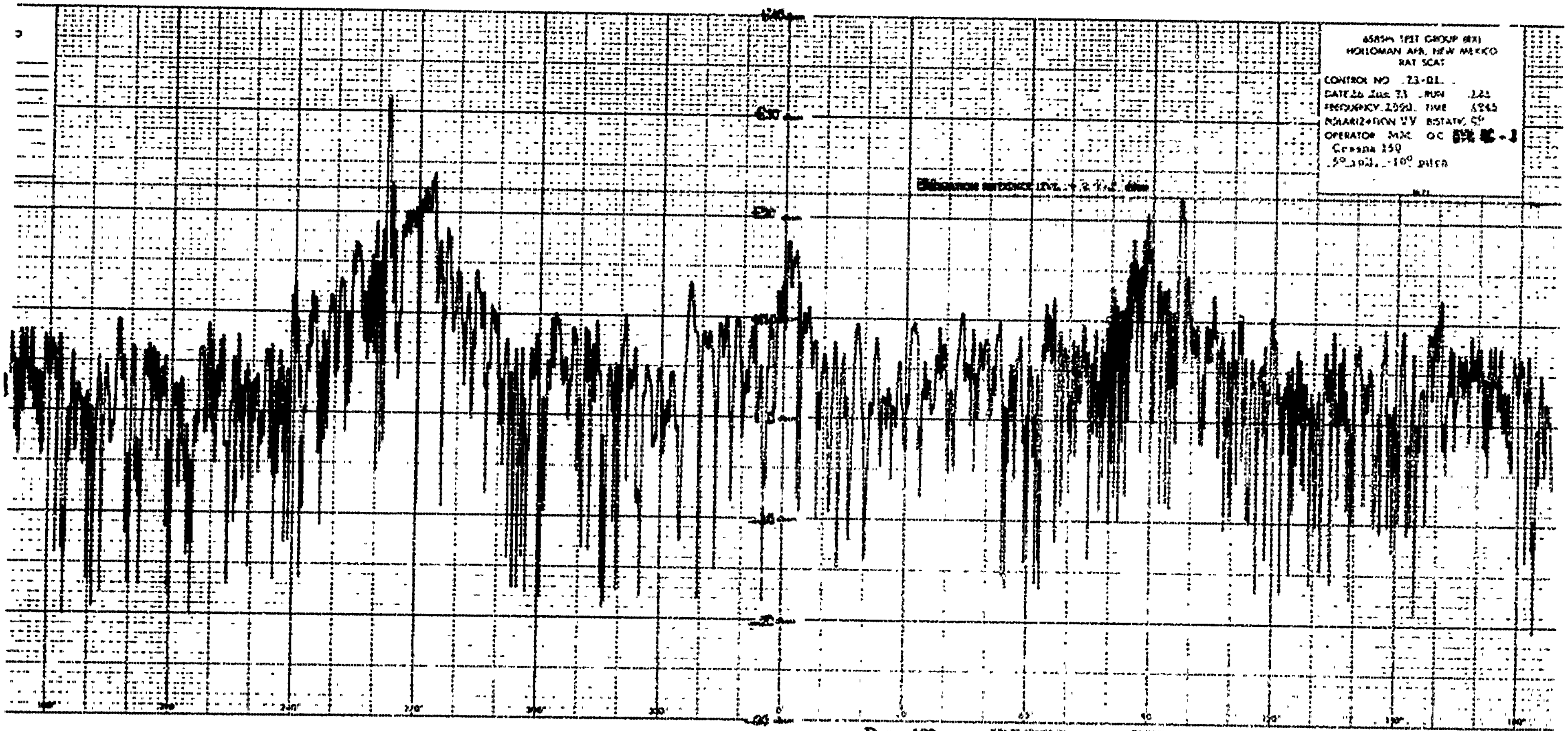



+40
+30
+20
+10
0
CONTROL NO 73-01
DATE 21 Jun 73
TIME 1020
BISTATIC 0°
DTH SC - 1

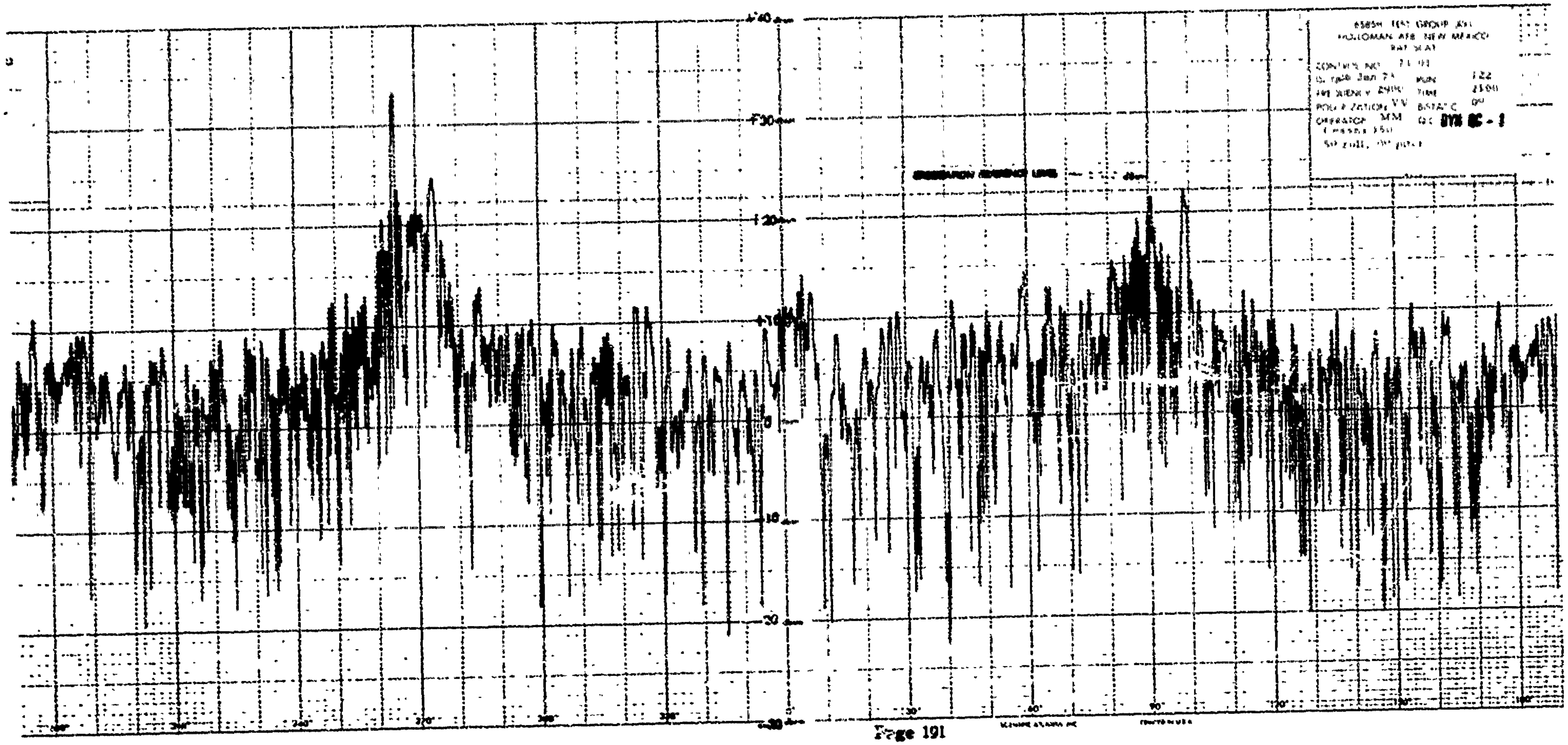

6585th TEST GROUP (RK)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73 RUN 77
FREQUENCY 2900 TIME 1120
POLARIZATION V BISTATIC 0°
OPERATOR
Cessna 150
0° roll, +5° pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
0
-10
-20
-30

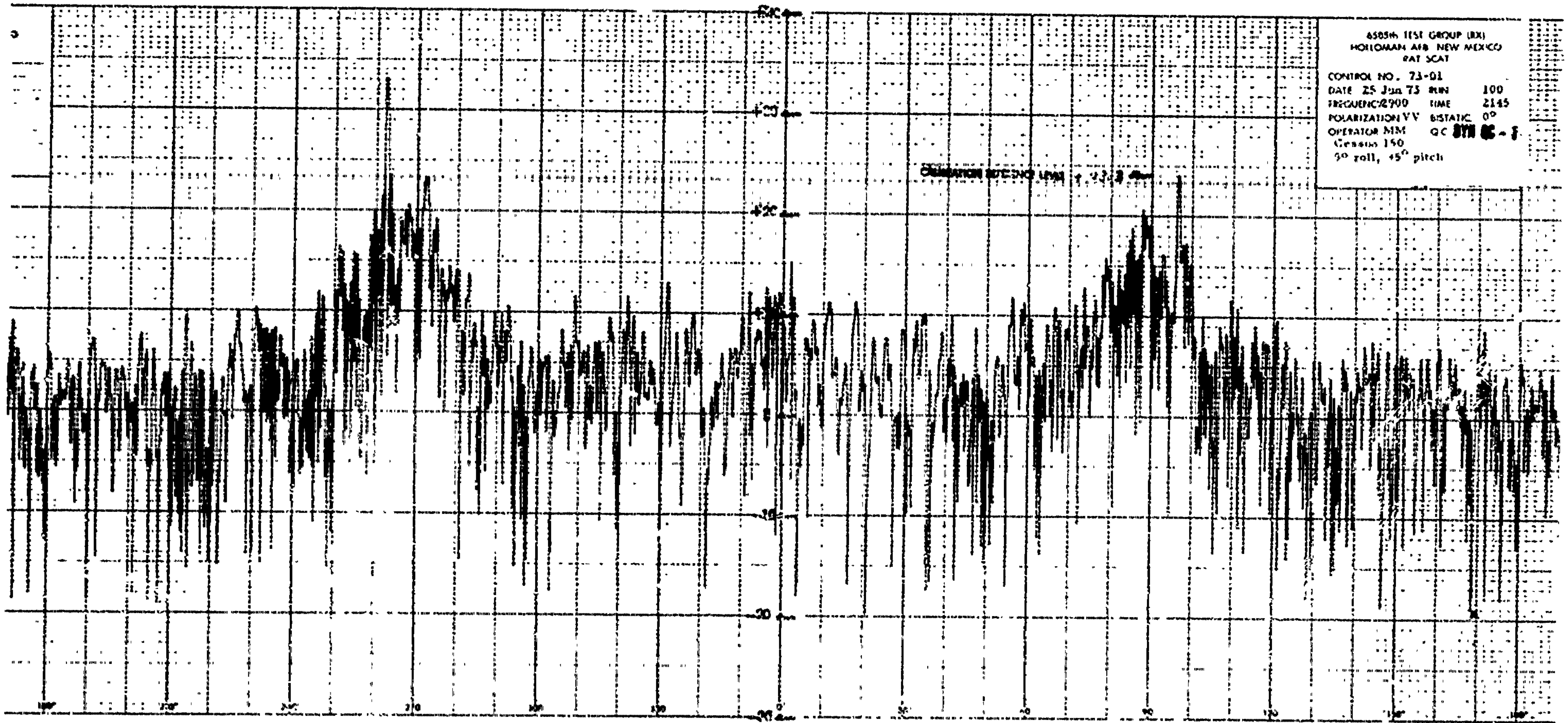

HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73 RUN 86
FREQUENCY 2900 TIME 1510
POLARIZATION VV BISTATIC 0°
OPERATOR QC
Cessna 150
0° roll, +10° pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
0
-10
-20
-30

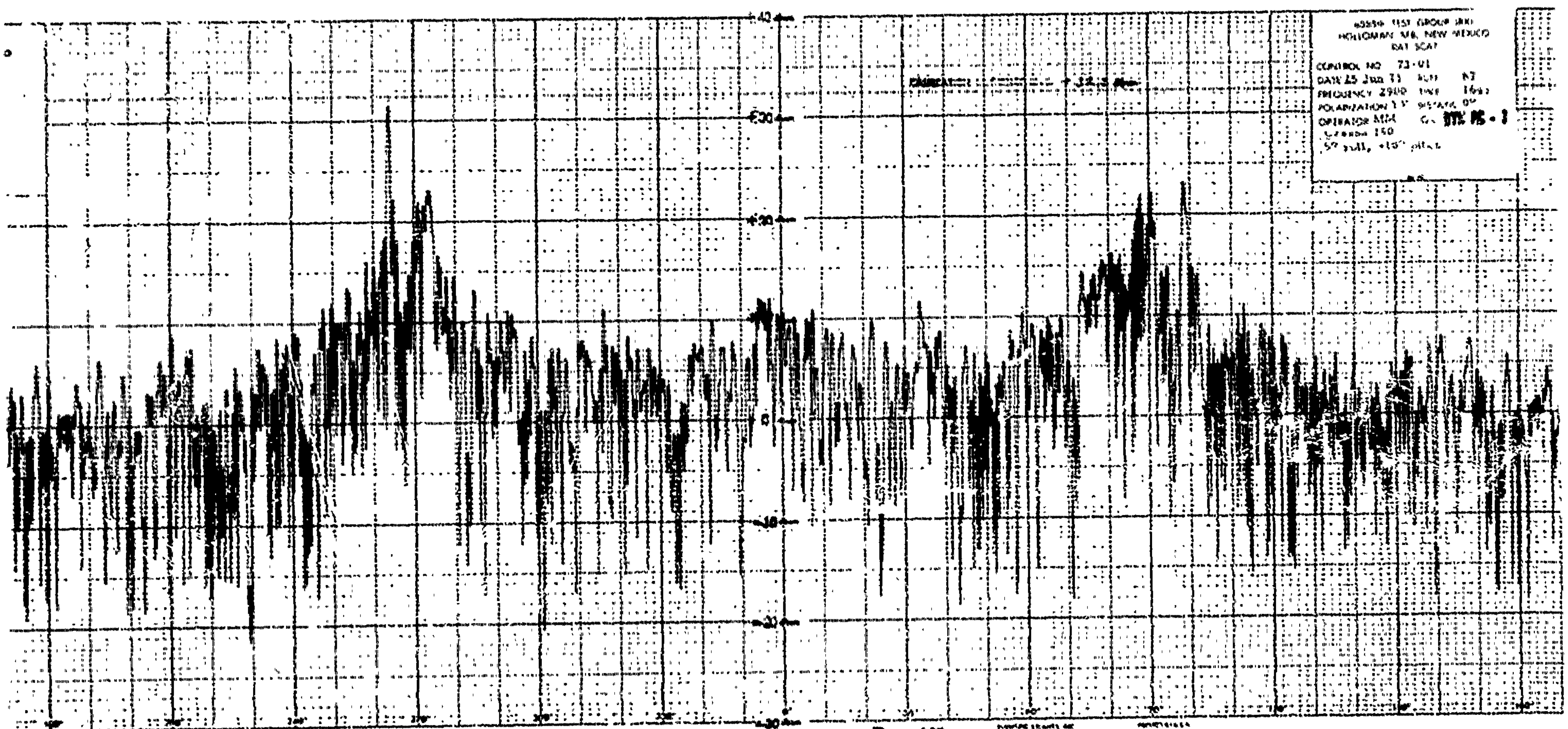

6585th TEST GROUP (XY)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 26 Jun 73 RUN 198
FREQUENCY 2900 TIME 0930
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
5° roll, -5° pitch
+30
+20
+10
-10
-20
210°
240°
270°
300°
330°
30°
60°
90°
120°
150°

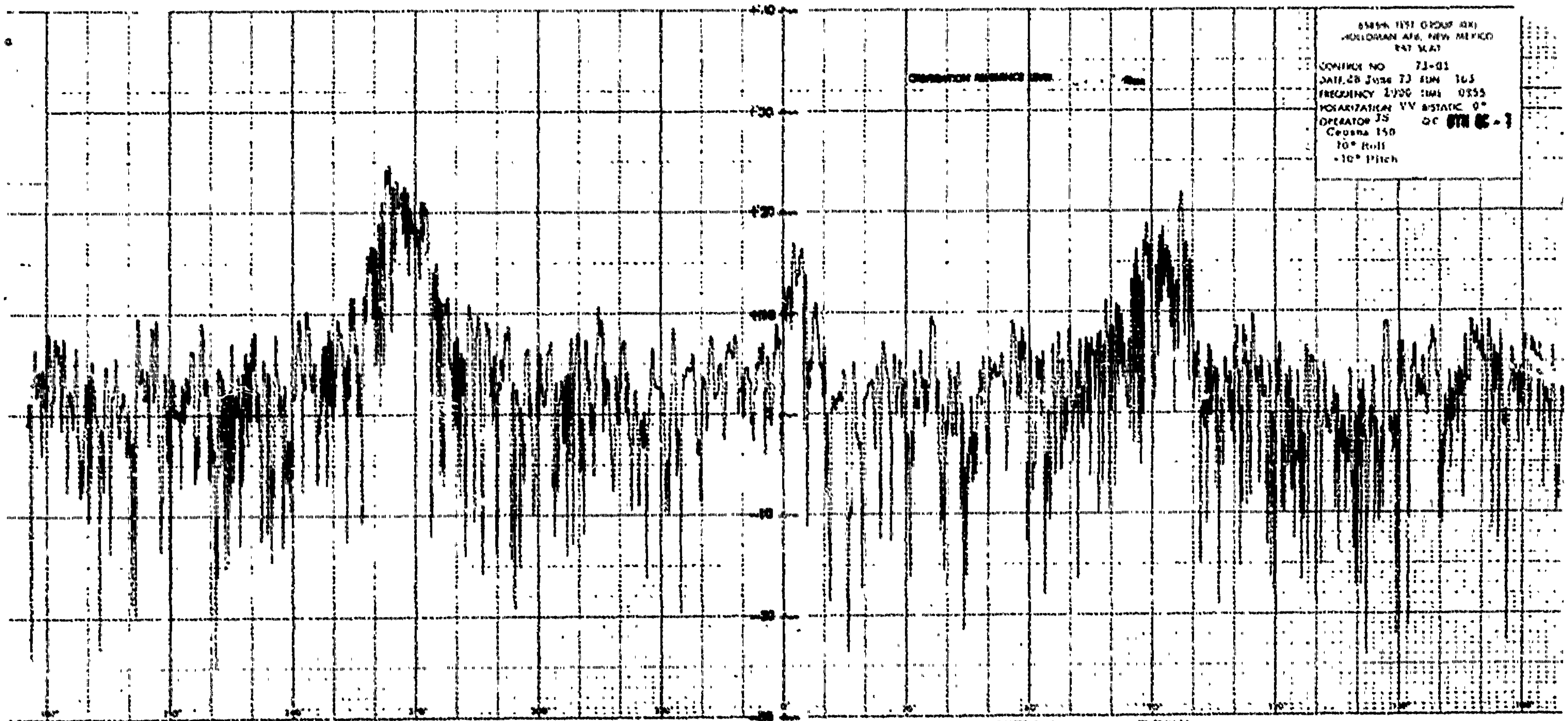


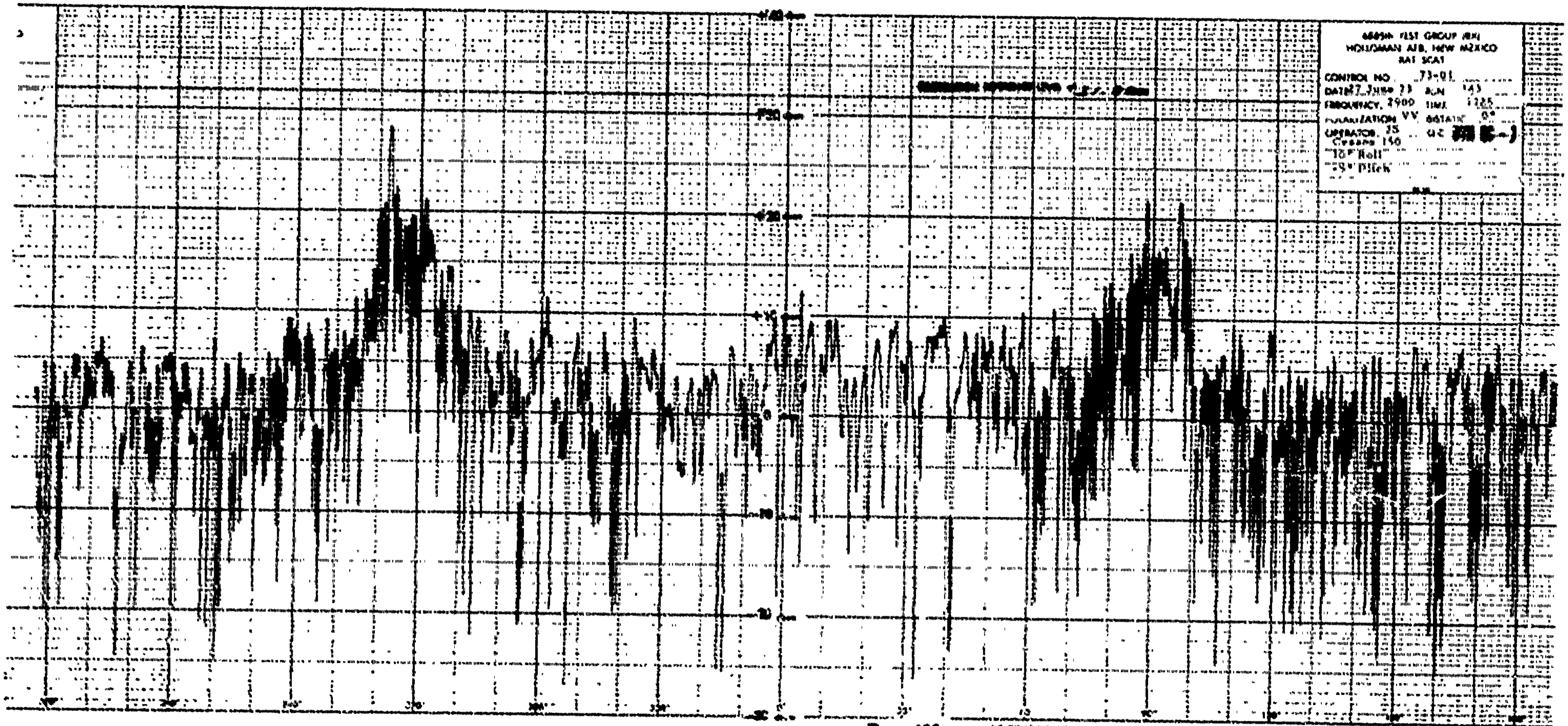
6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 26 Jan 73 RUN
FREQUENCY TIME
POLARIZATION VV BISTATIC 5°
OPERATOR MJC QC
Cessna 150

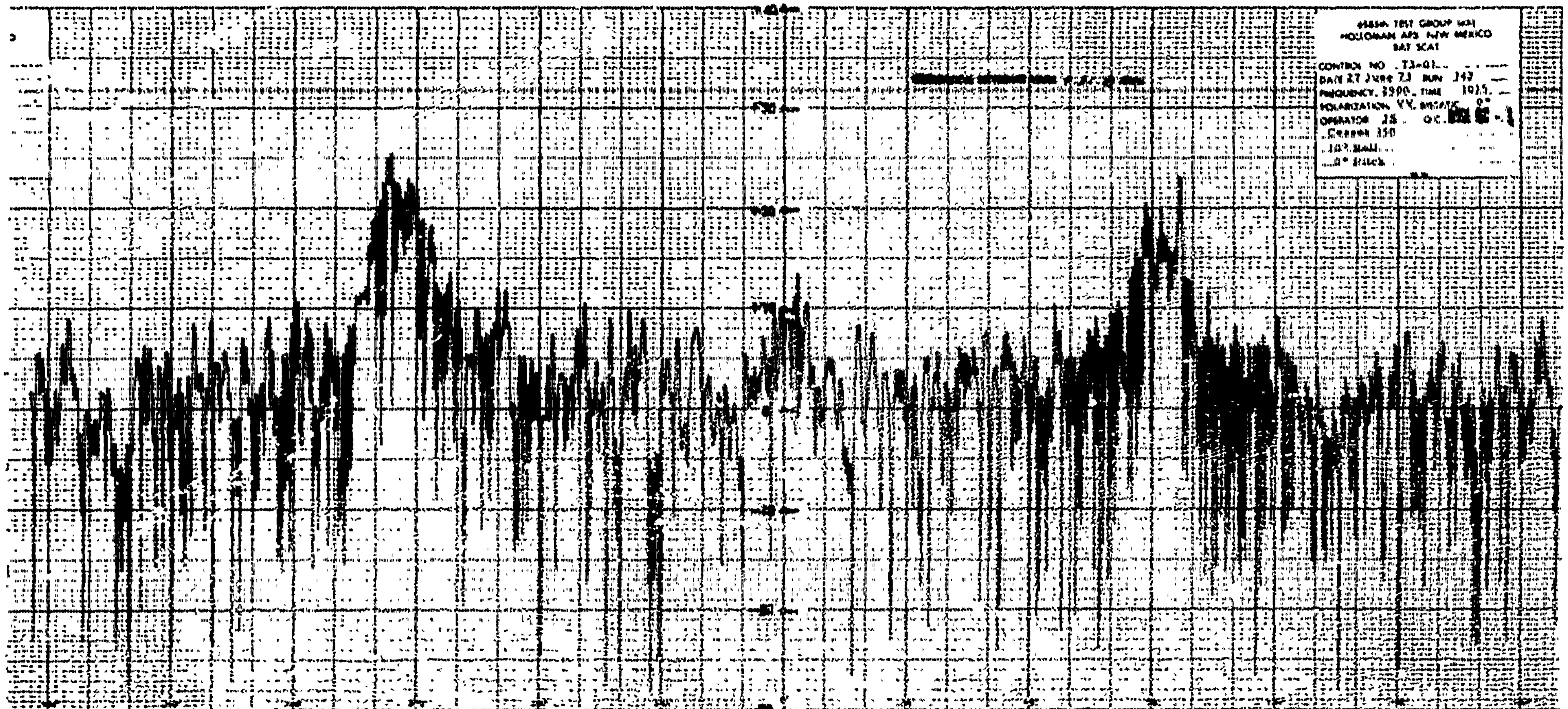

6585th TEST GROUP (AF)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
OBSERVATION REFERENCE LEVEL
+40 dBm
+30 dBm
+20 dBm
+10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm

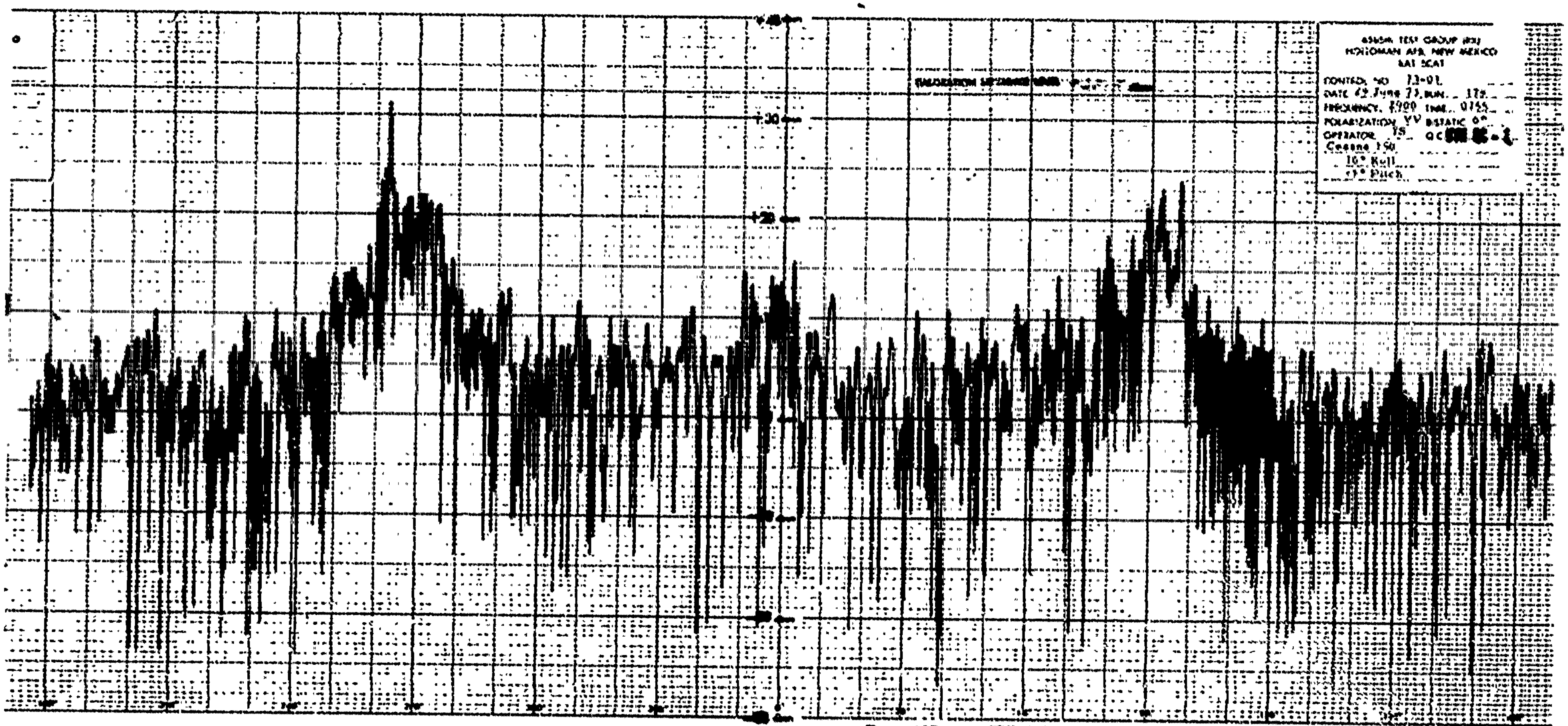

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 25 Jun 73 RUN 100
FREQUENCY 2900 TIME 2145
POLARIZATION VV BISTATIC 0°
OPERATOR MM
Cessna 150
5° roll, 45° pitch


6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73
FREQUENCY 2900
OPERATOR
+40
+30
+20
+10
0
-10
-20
-30

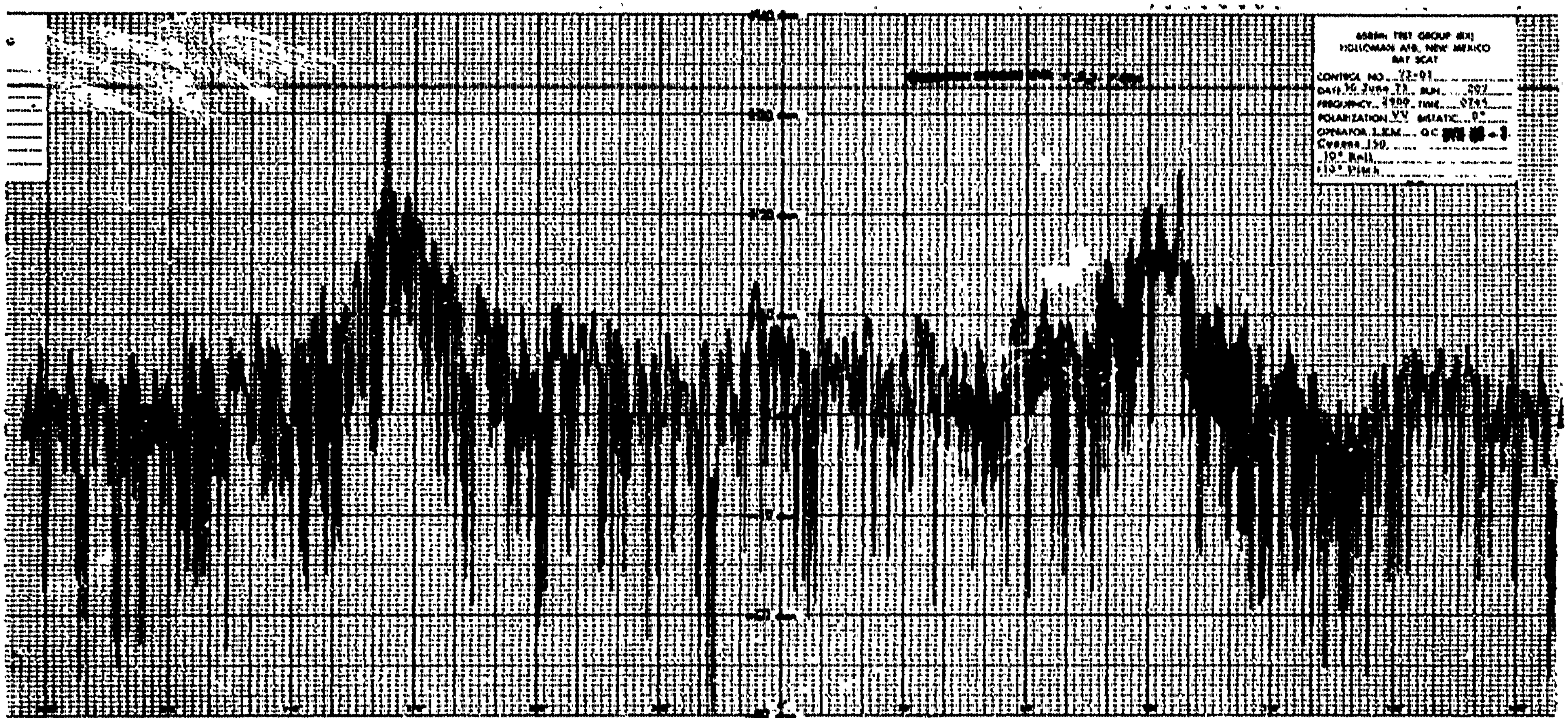

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 28 June 73 RUN 163
FREQUENCY 2900 TIME 0935
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC [redacted]
Cessna 150
10° Roll
+10° Pitch
+40
+30
+20
+10
0
-10
-20
-30

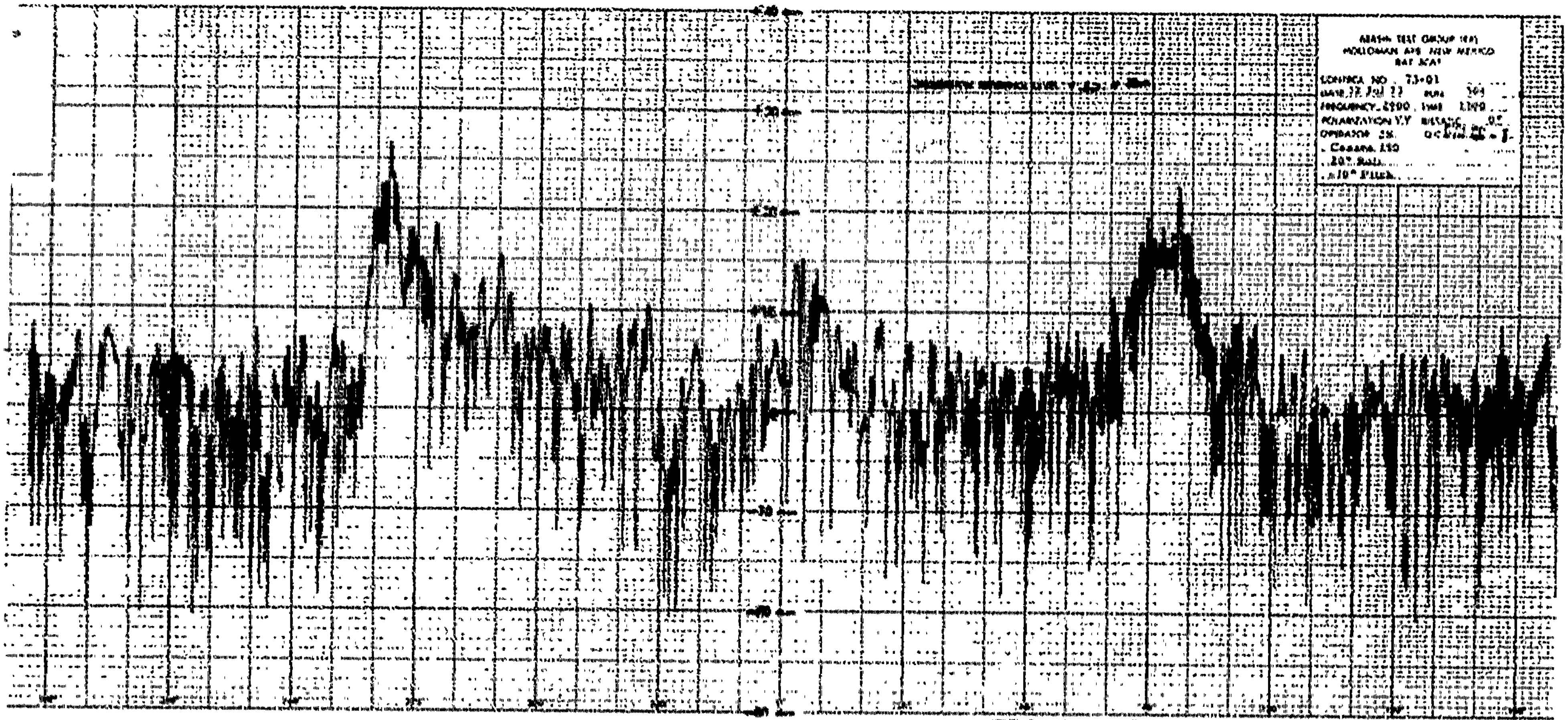

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 27 June 73 RUN 143
FREQUENCY 2900 TIME 1225
POLARIZATION VV BISTATIC 0°
OPERATOR JS UC [redacted]
Cessna 150
"10° Roll"
"9° Pitch"

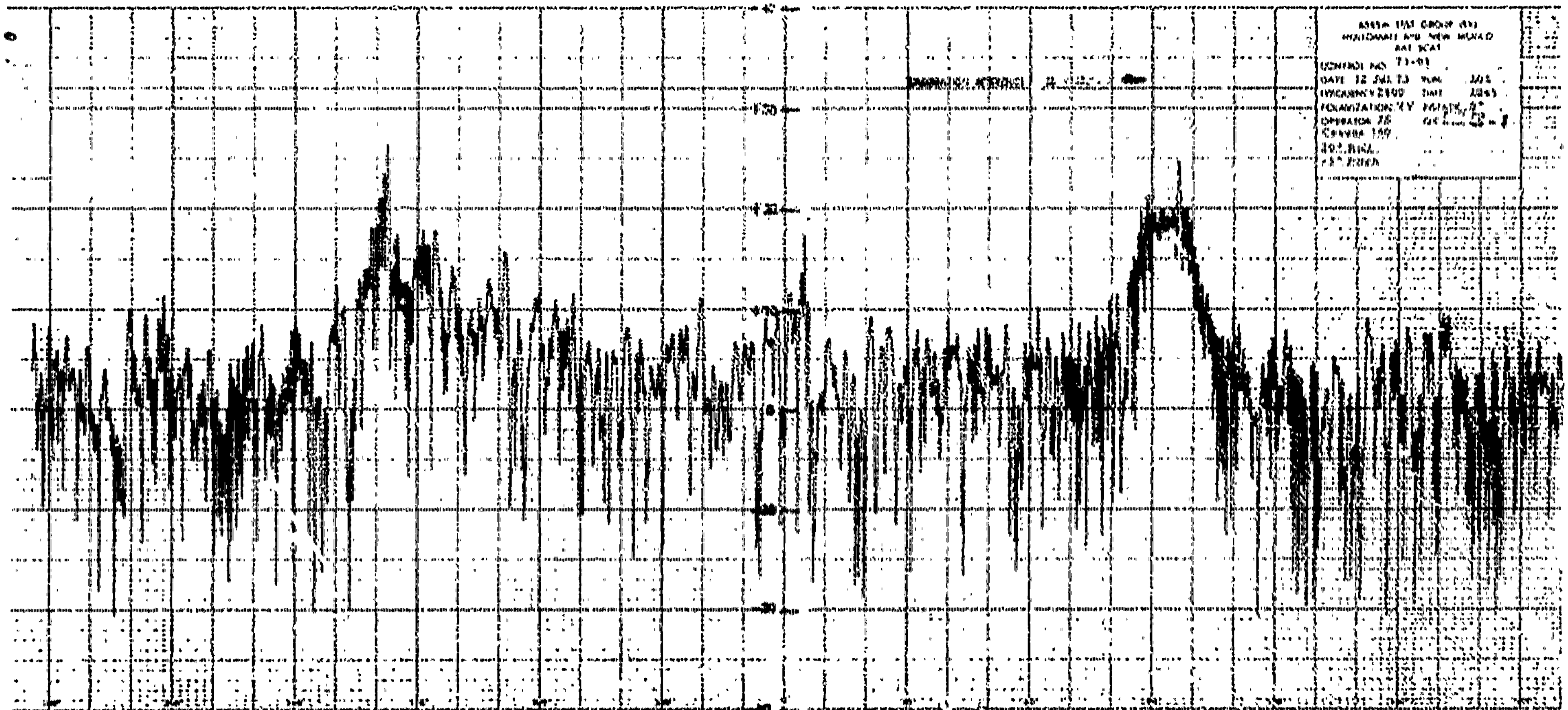

TEST GROUP
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 27 June 73 RUN 142
FREQUENCY 3900 TIME 1015
POLARIZATION VV BISTATIC 0°
OPERATOR JS Q.C.
Cessna 150
0° Pitch

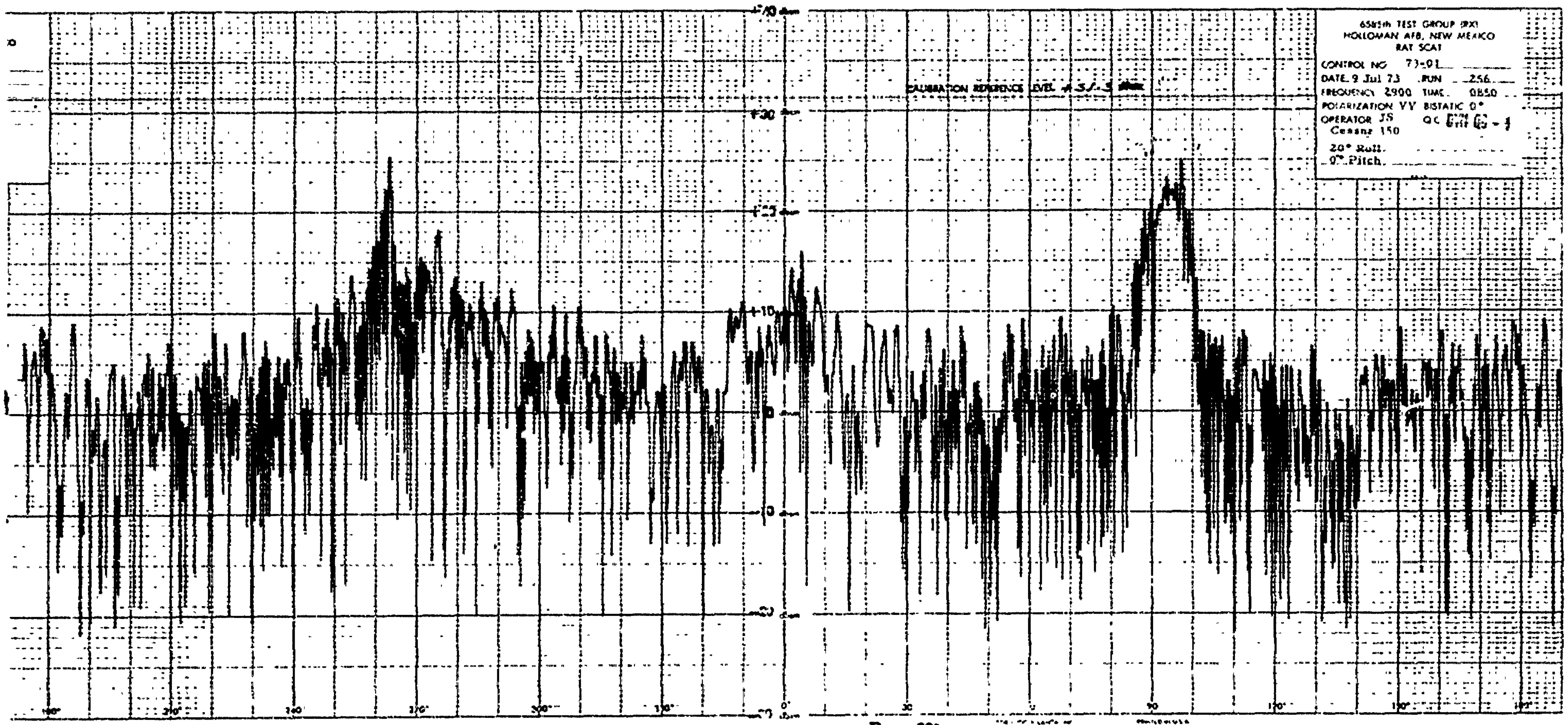


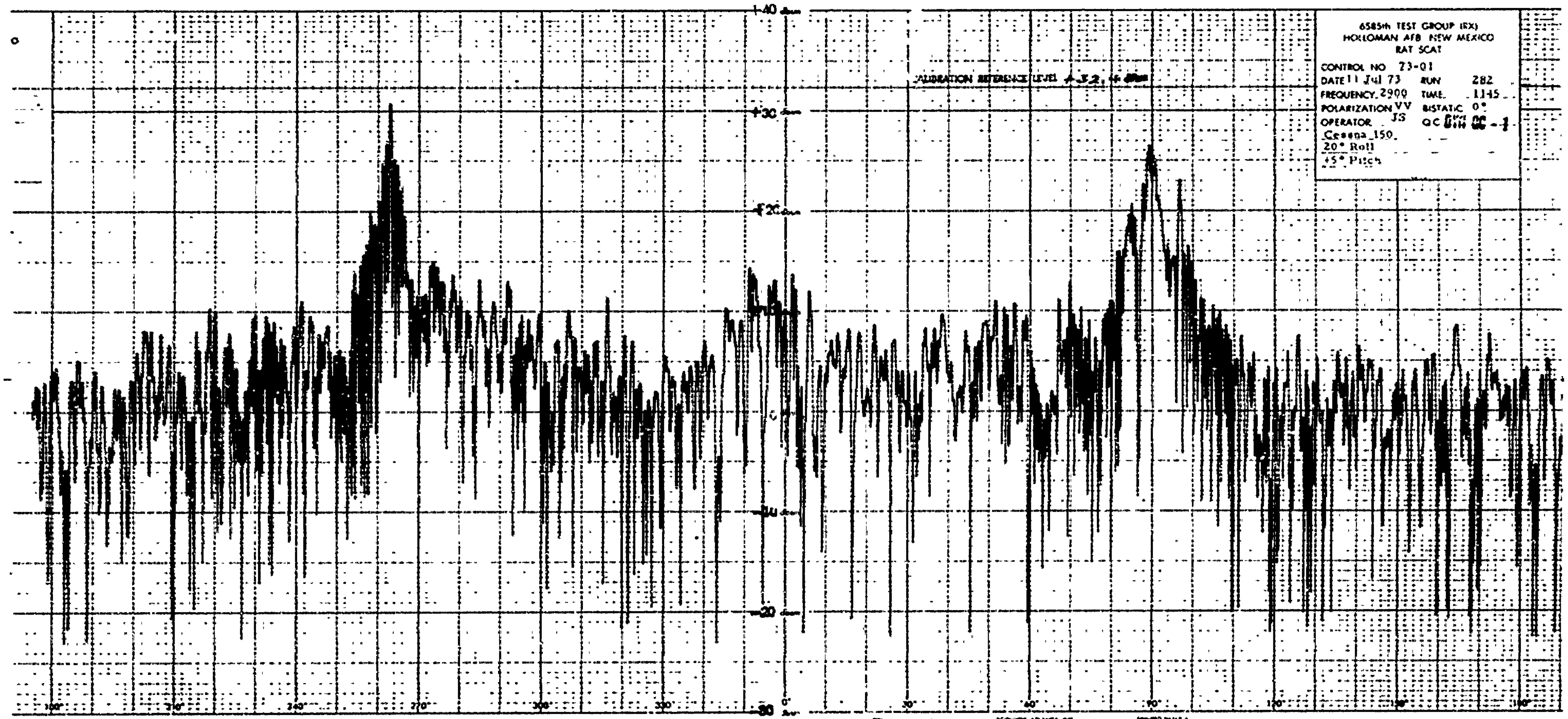
6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 12 June 73 RUN 178
FREQUENCY 8900 TIME 0755
POLARIZATION VV BISTATIC 0°
OPERATOR TS QC
Cessna 150
10° Roll
+3° Pitch
CALIBRATION REFERENCE LEVEL
+30 dbsm
+20 dbsm
+10 dbsm
0 dbsm
-10 dbsm

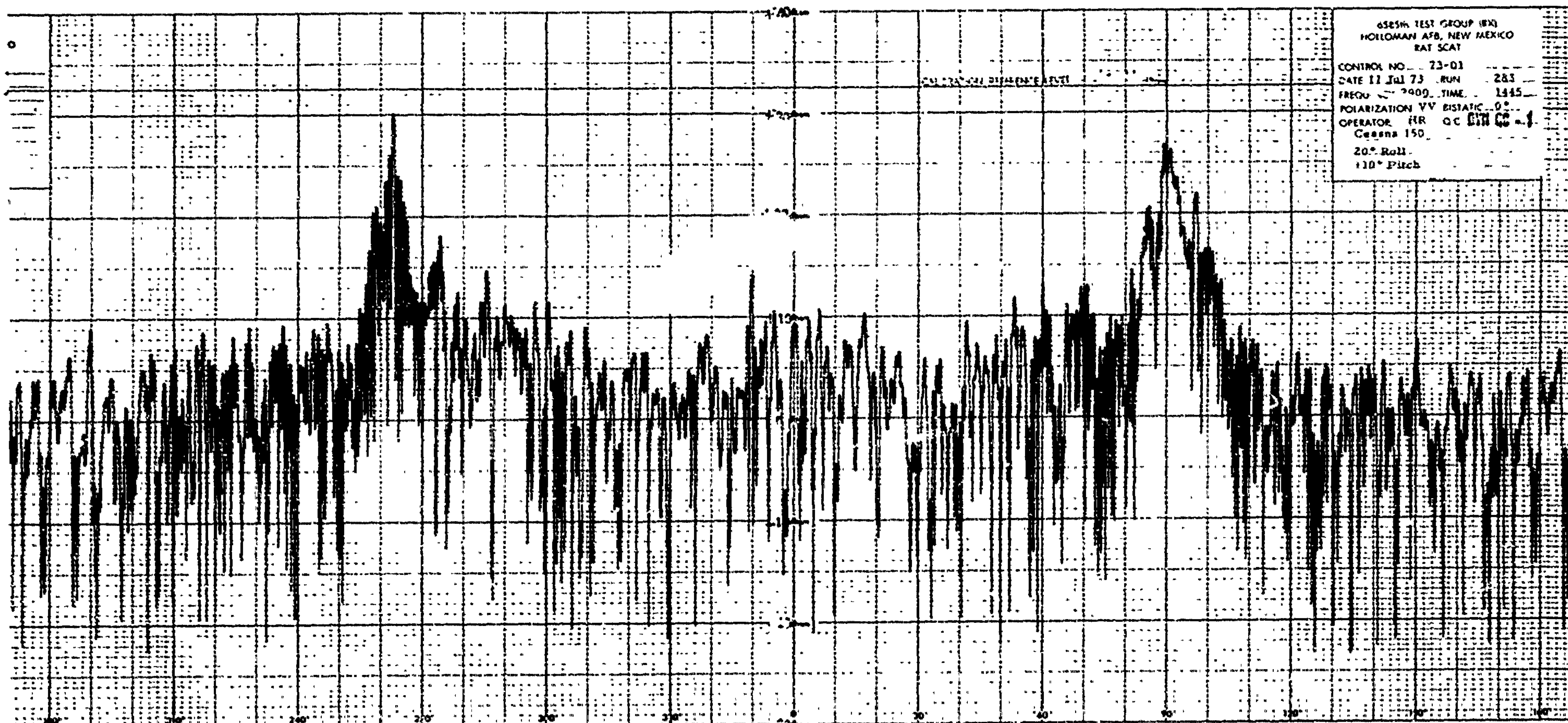

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 72-01
DATE 30 June 73 RUN 207
FREQUENCY 2900 TIME 0745
POLARIZATION VV BISTATIC 0°
OPERATOR LEM QC [redacted] -1
Cessna 150
10° Roll
+13° Pitch

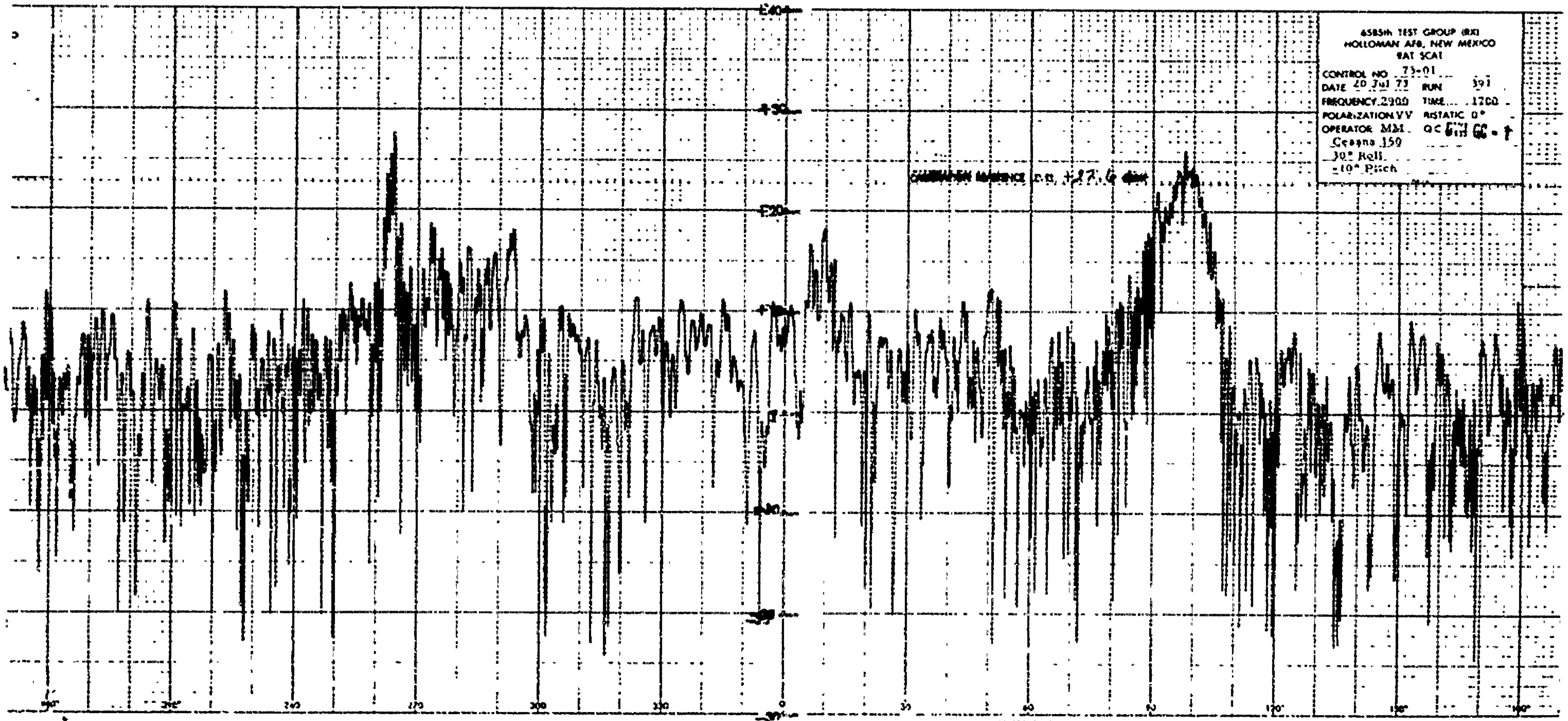

HOLLOMAN AFB NEW MEXICO
CONTROL NO. 73-01
POLARIZATION V,V
OPERATOR

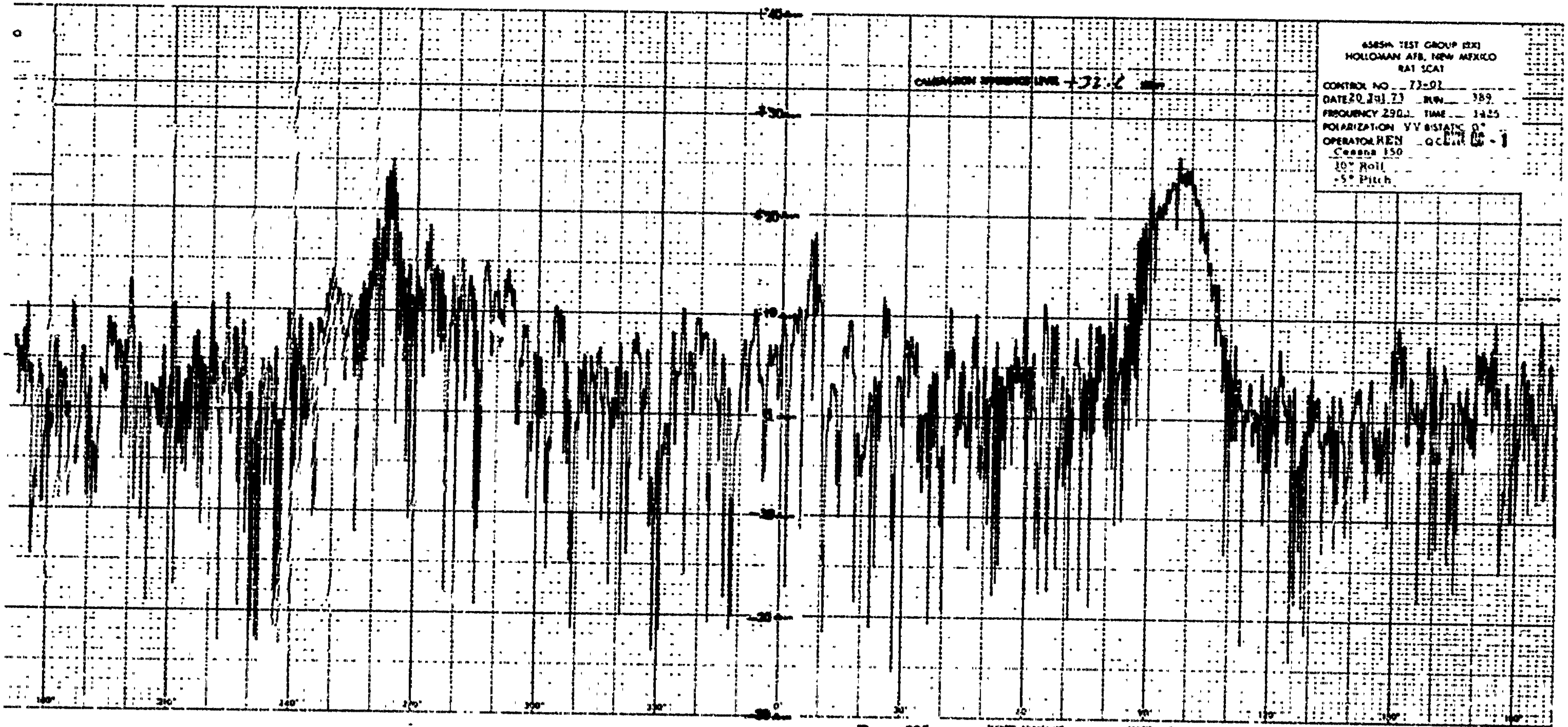

CONTROL NO. 71-01
DATE 12 JUL 73

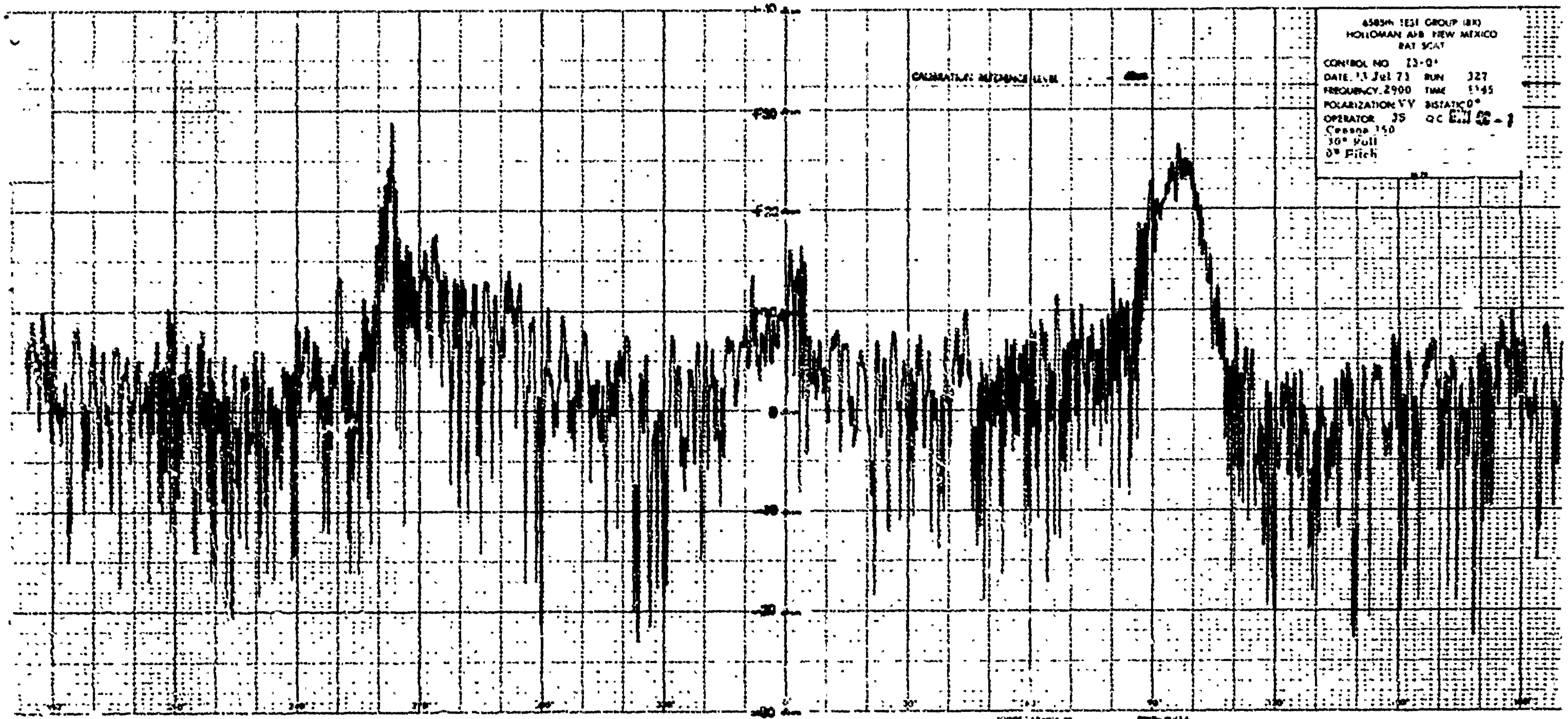

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 9 Jul 73 RUN 256
FREQUENCY 2900 TIME 0850
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+40 dbsm
+30 dbsm
+20 dbsm
+10
0 dbsm
-10 dbsm
-20 dbsm
0°
30
90
150°
180°
210°
240
270°
300°
330°

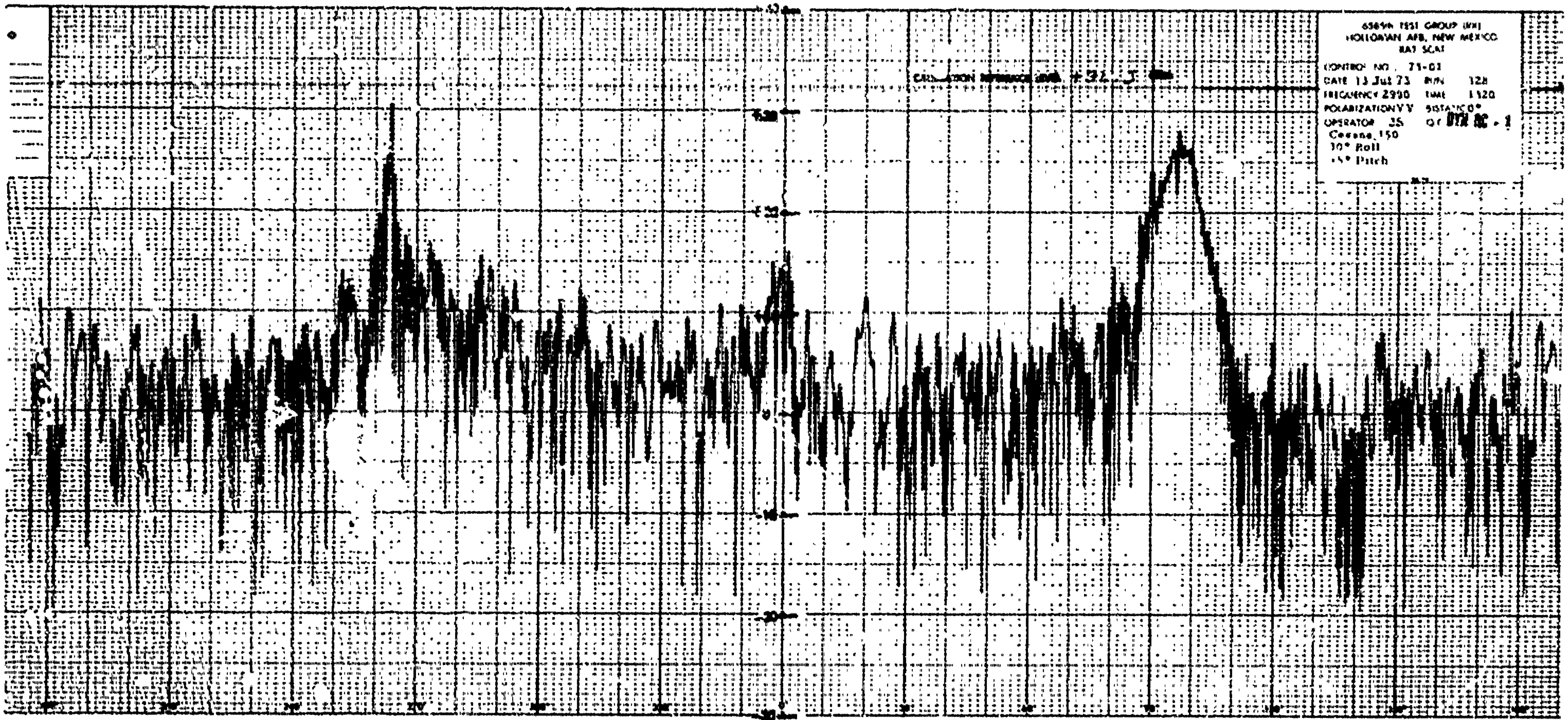

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 11 Jul 73
RUN 282
FREQUENCY 2900
TIME 1145
POLARIZATION VV
BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
+5° Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
-20
-30
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

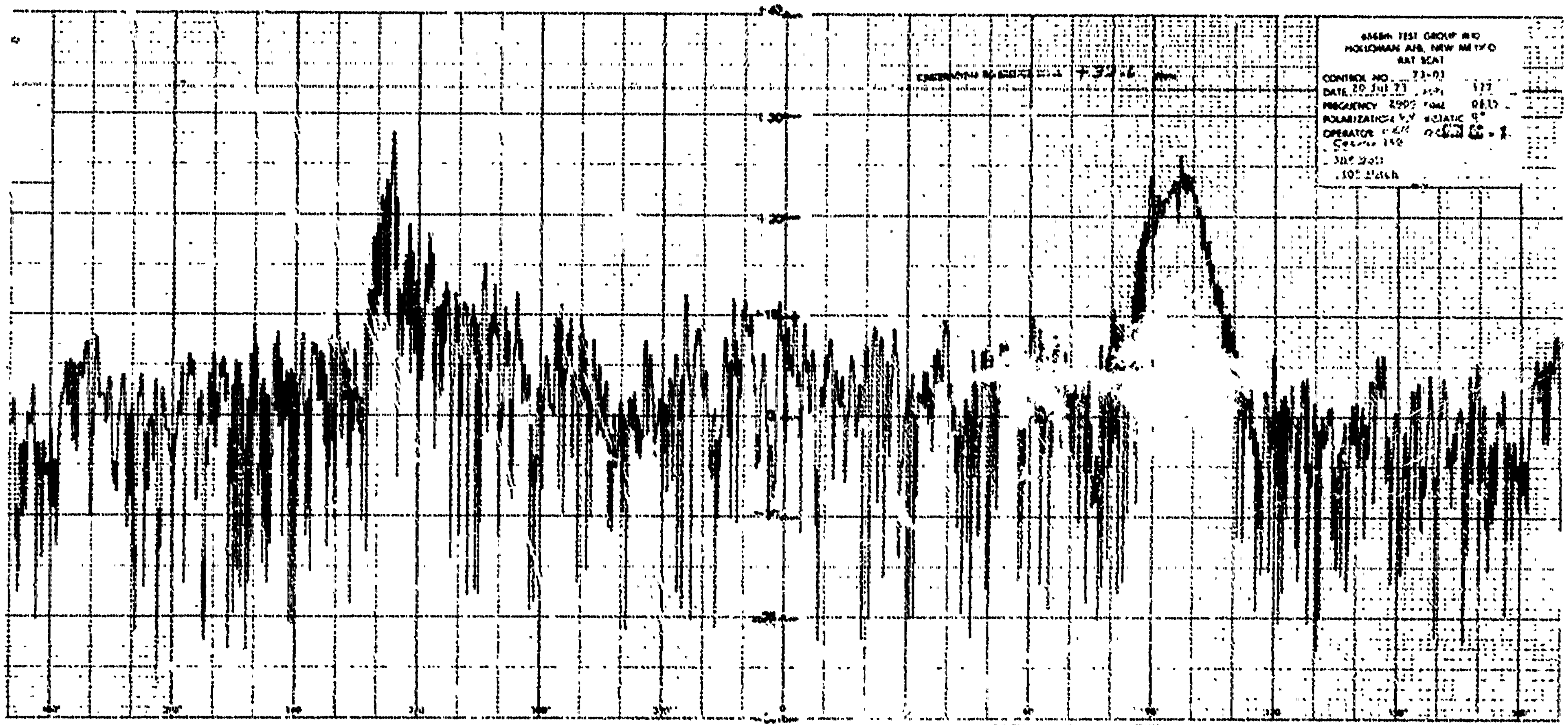

6585th TEST GROUP (BX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 11 Jul 73 RUN 283
FREQU 9000 TIME 1445
POLARIZATION VV BISTATIC 0°
OPERATOR HR QC
Cessna 150
20° Roll
+10° Pitch
180°
210°
240°
270°
300°
330°
0
30°
60°
90°
120°
150°
180°

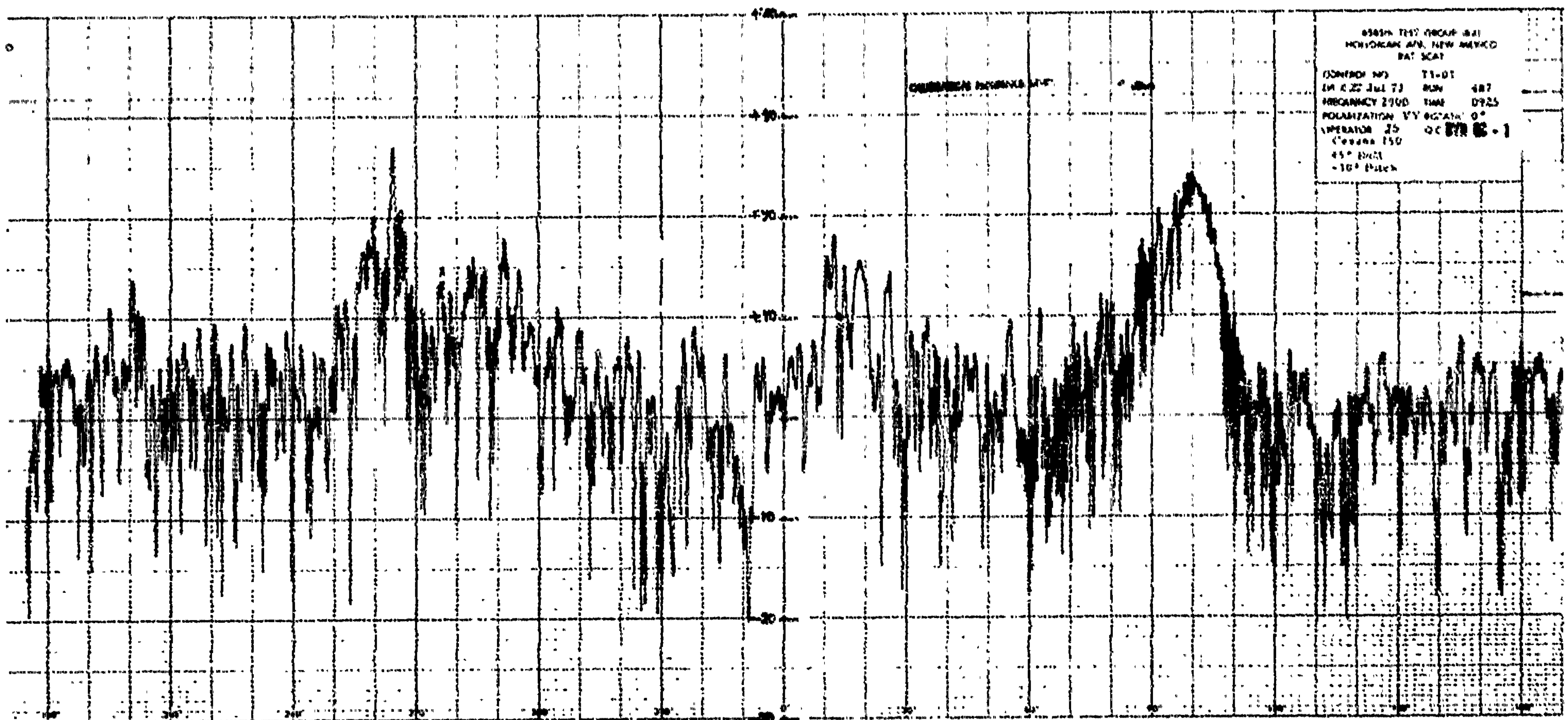

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 20 Jul 73 RUN 391
FREQUENCY 2900 TIME 1700
POLARIZATION VV BISTATIC 0°
OPERATOR MM
Cessna 150
30° Roll
-10° Pitch
CALIBRATION REFERENCE
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240
270
300
330
0
30
60
90
120°
150°
180°

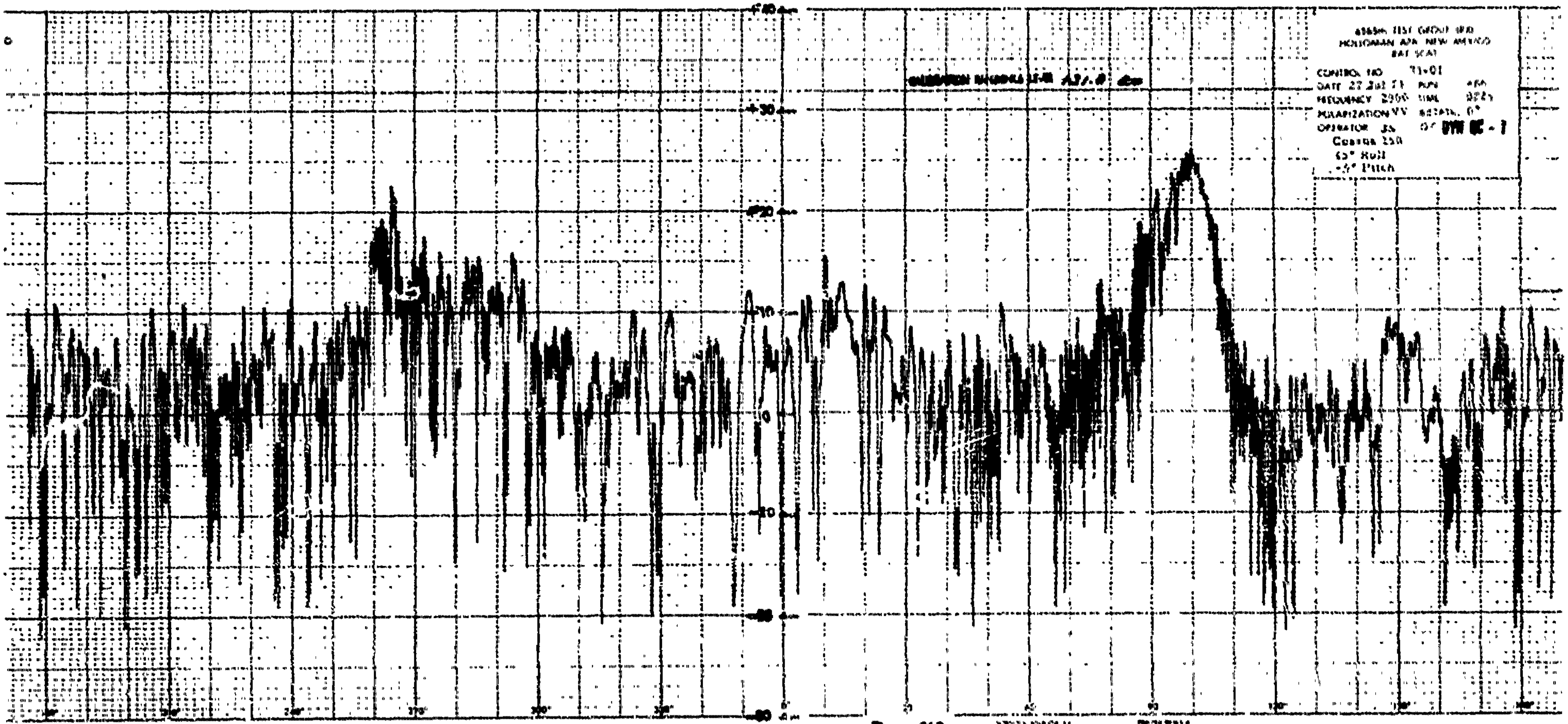

6585th TEST GROUP (DX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-02
DATE 20 Jul 73 RUN 389
FREQUENCY 290 TIME 1425
POLARIZATION VV
OPERATOR KEN QC
Cessna 150
10° Roll
-5° Pitch
CALIBRATION REFERENCE LEVEL +32.2
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

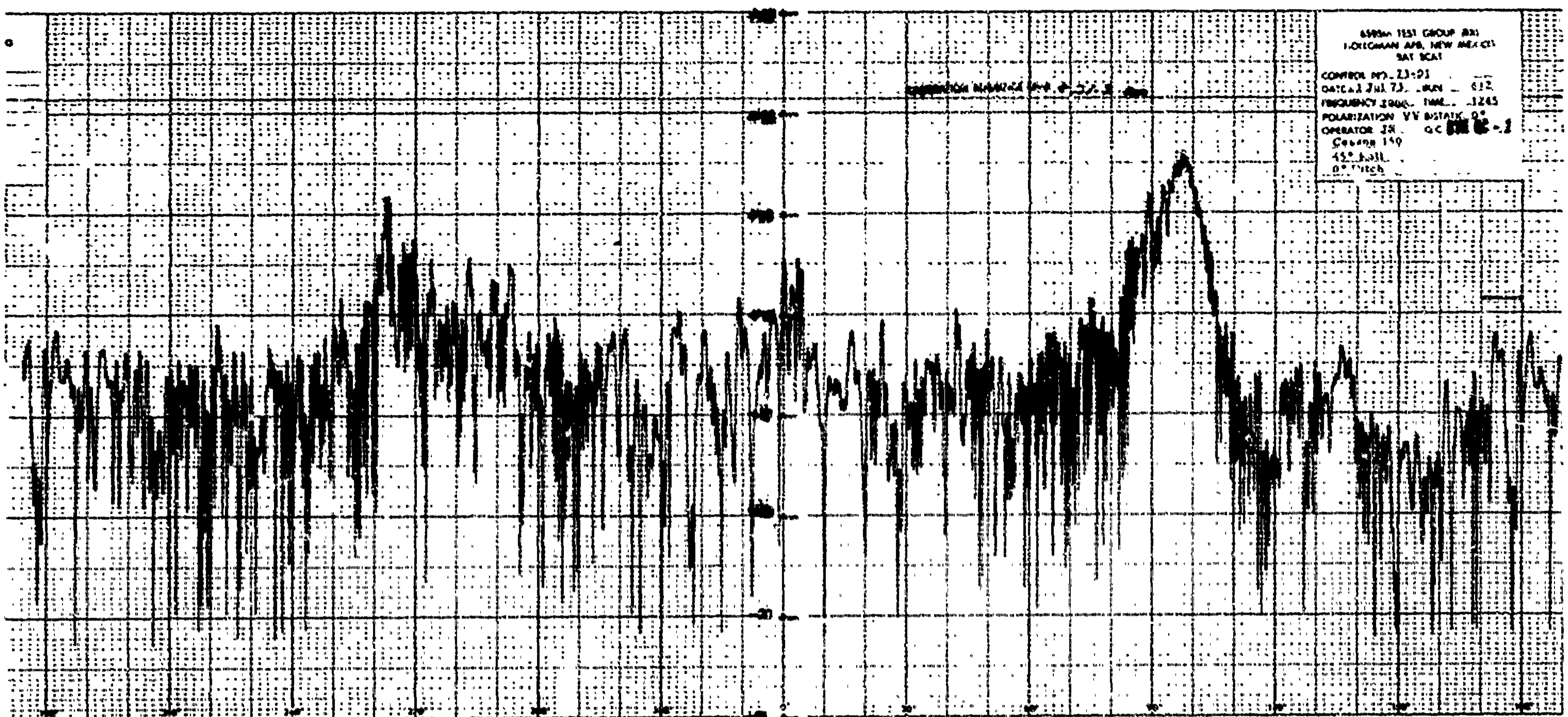

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 13-0°
DATE 13 Jul 73 RUN 327
FREQUENCY 2900 TIME 1145
POLARIZATION VV BISTATIC 0°
OPERATOR JS QC
Cessna 150
30° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+10 dbsm
+30 dbsm
+20 dbsm
0 dbsm
-20 dbsm
-30 dbsm
270°
300°
330°
0°
30°
90°

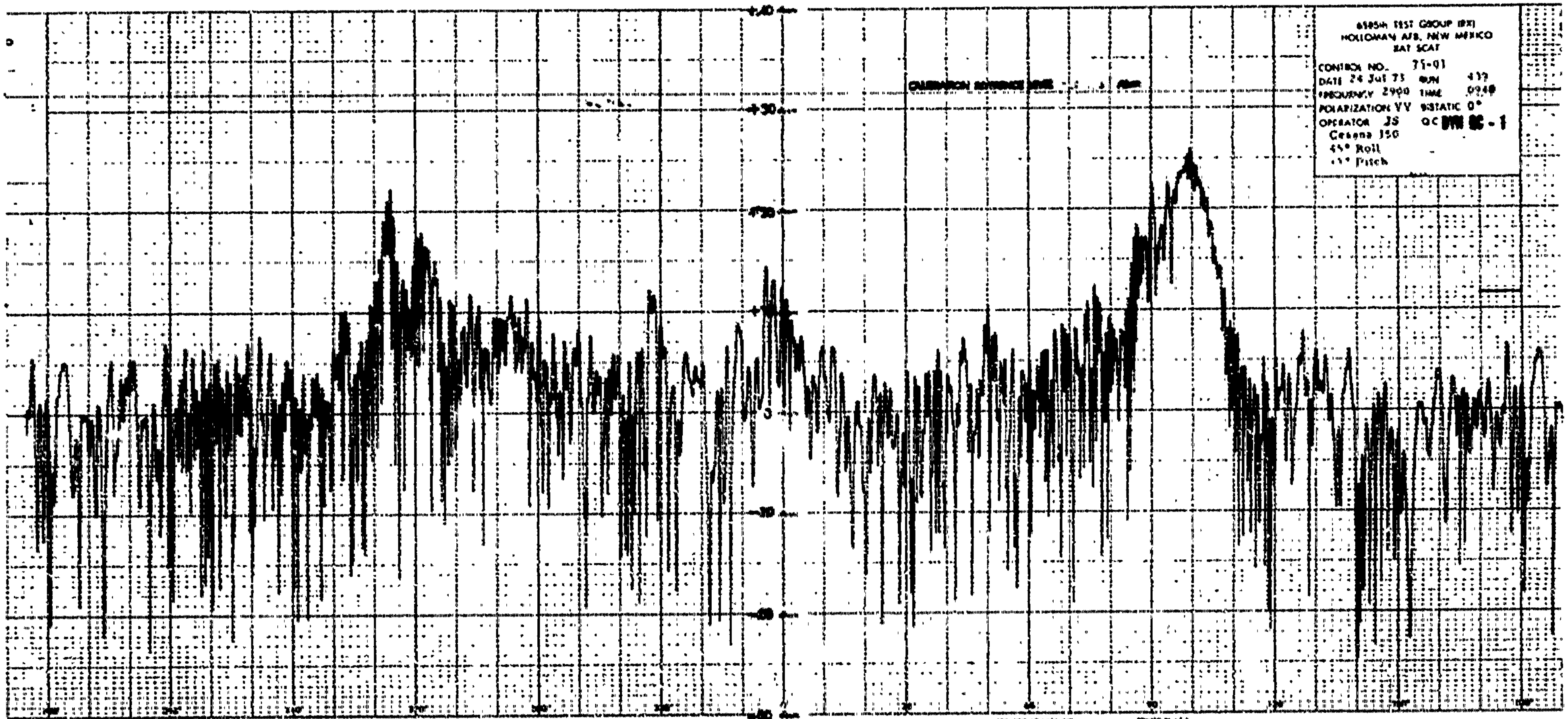

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 71-01
DATE 13 Jul 73 RUN 128
FREQUENCY 2990 TIME 1520
POLARIZATION V V
OPERATOR JS
Cessna 150
30° Roll
15° Pitch


TEST GROUP
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 20 Jul 73
FREQUENCY
POLARIZATION
OPERATOR

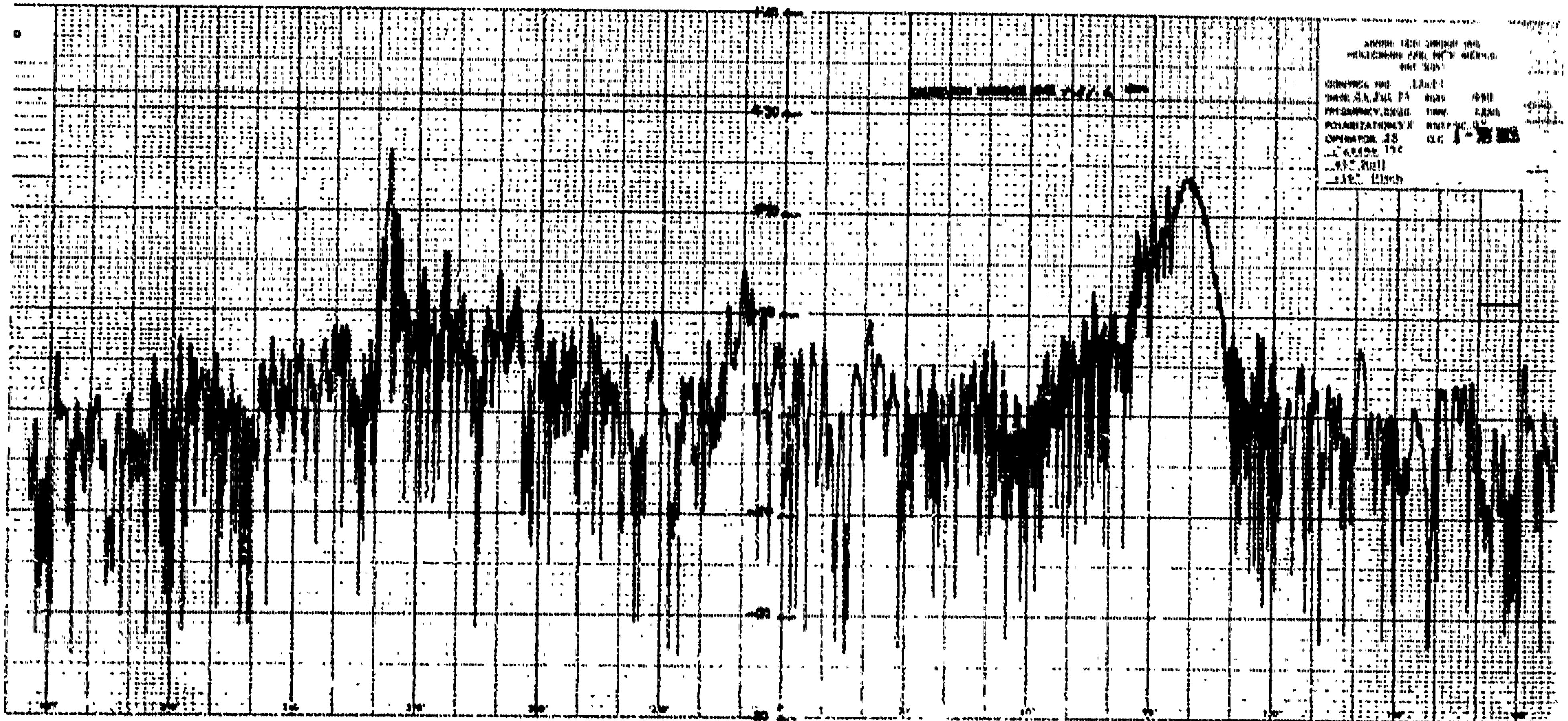

RAT SCAT
CONTROL NO T1-01
RUN 487
TIME 0925
POLARIZATION VV
0°
Cessna 150
45° Roll
-10° Pitch
+40
+30
+20
+10
-10
-20
-30

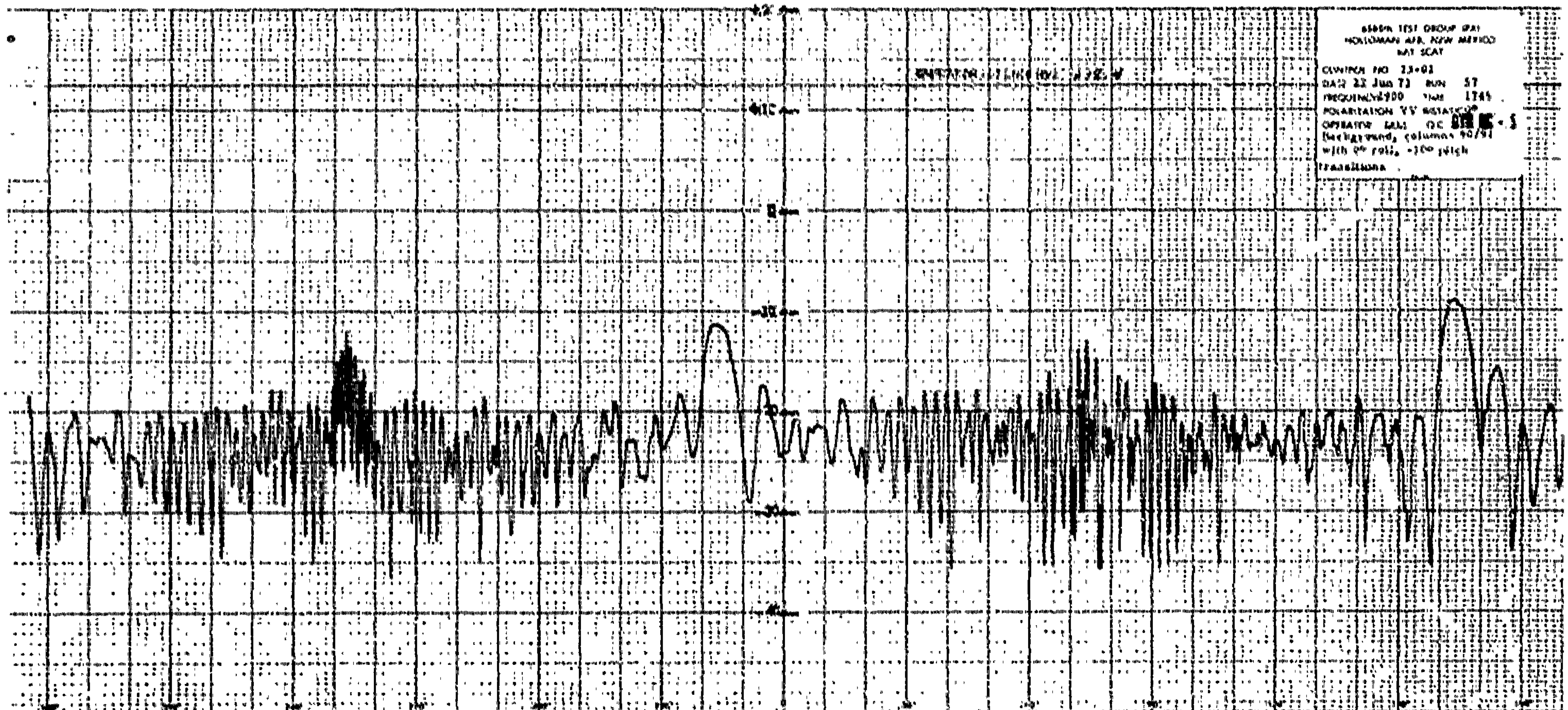

CONTROL NO 71-01
FREQUENCY
POLARIZATION VV
OPERATOR
65° Roll
Pitch
+30
+20
+10
0
-10
-20
0°
90
120°
150°
270°
300°

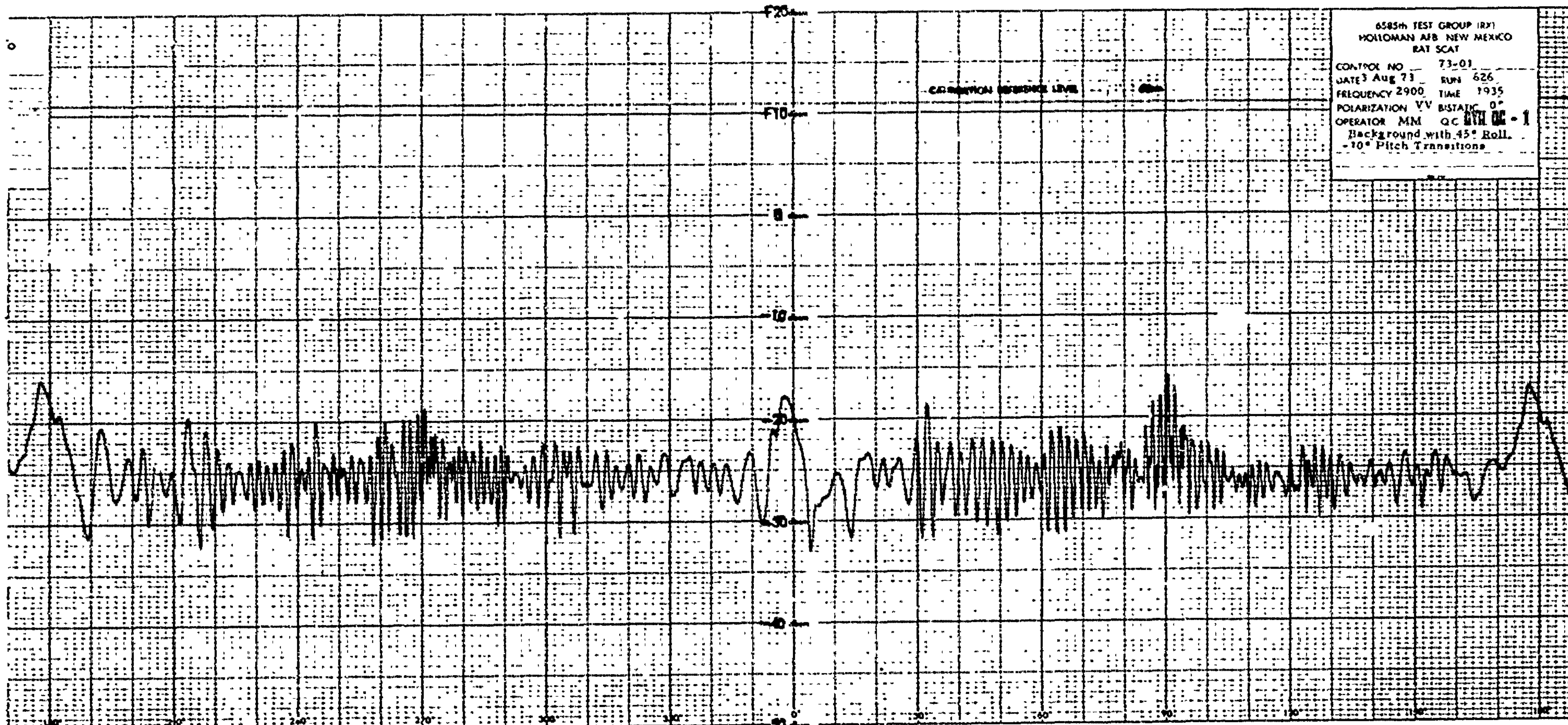


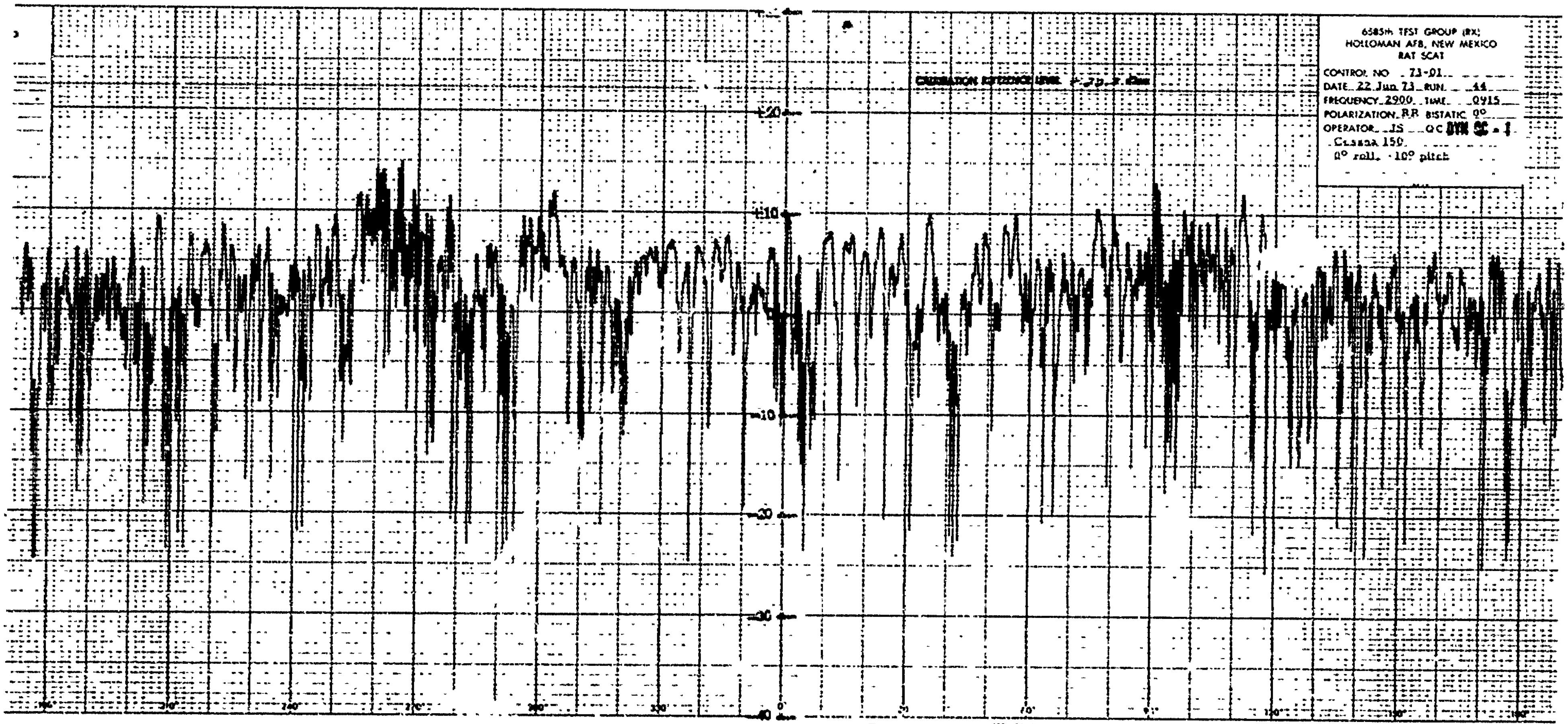


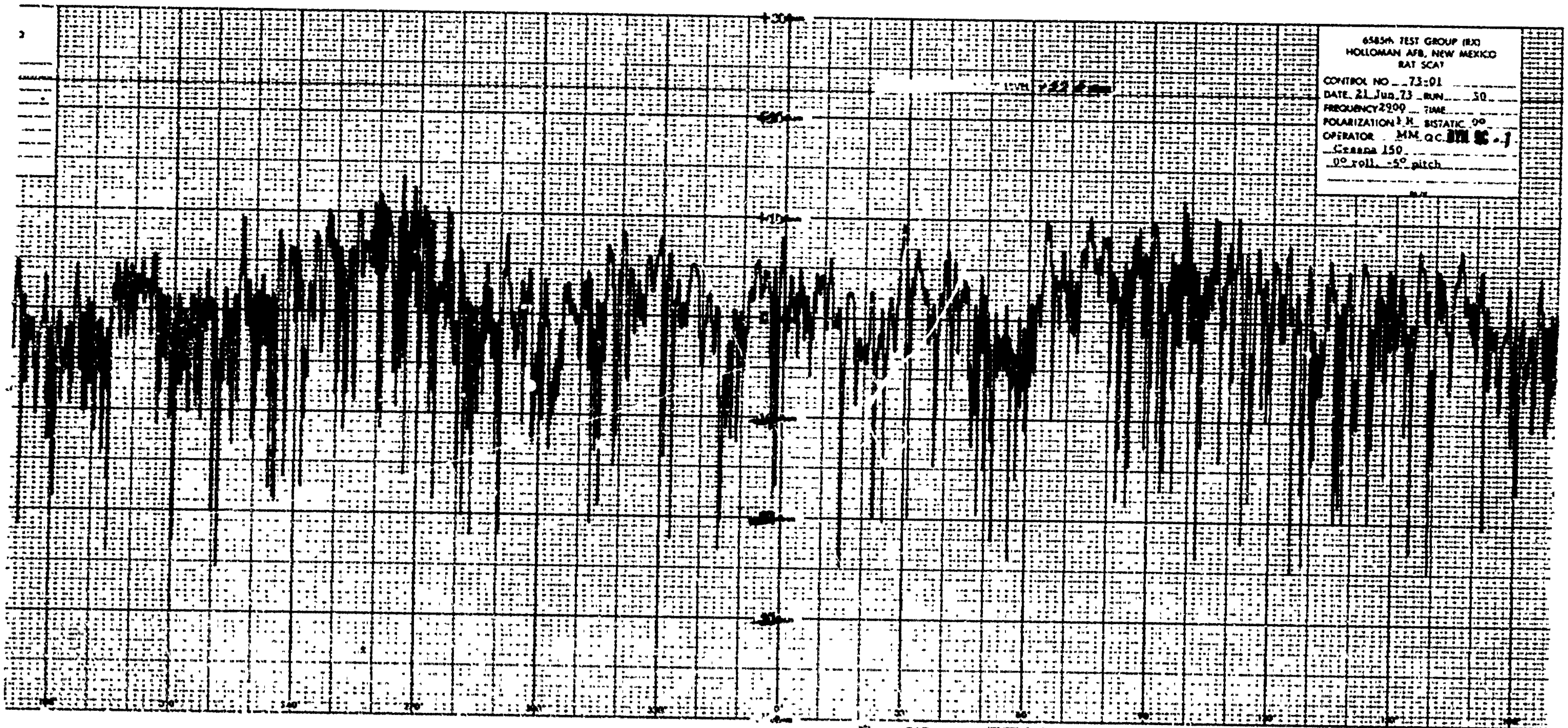
6585th TEST GROUP (PX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 75-01
DATE 24 Jul 75
FREQUENCY 2900
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
45° Roll
Pitch
CALIBRATION REFERENCE LEVEL
+40
+30
+20
+10
0
-10
-20
-30

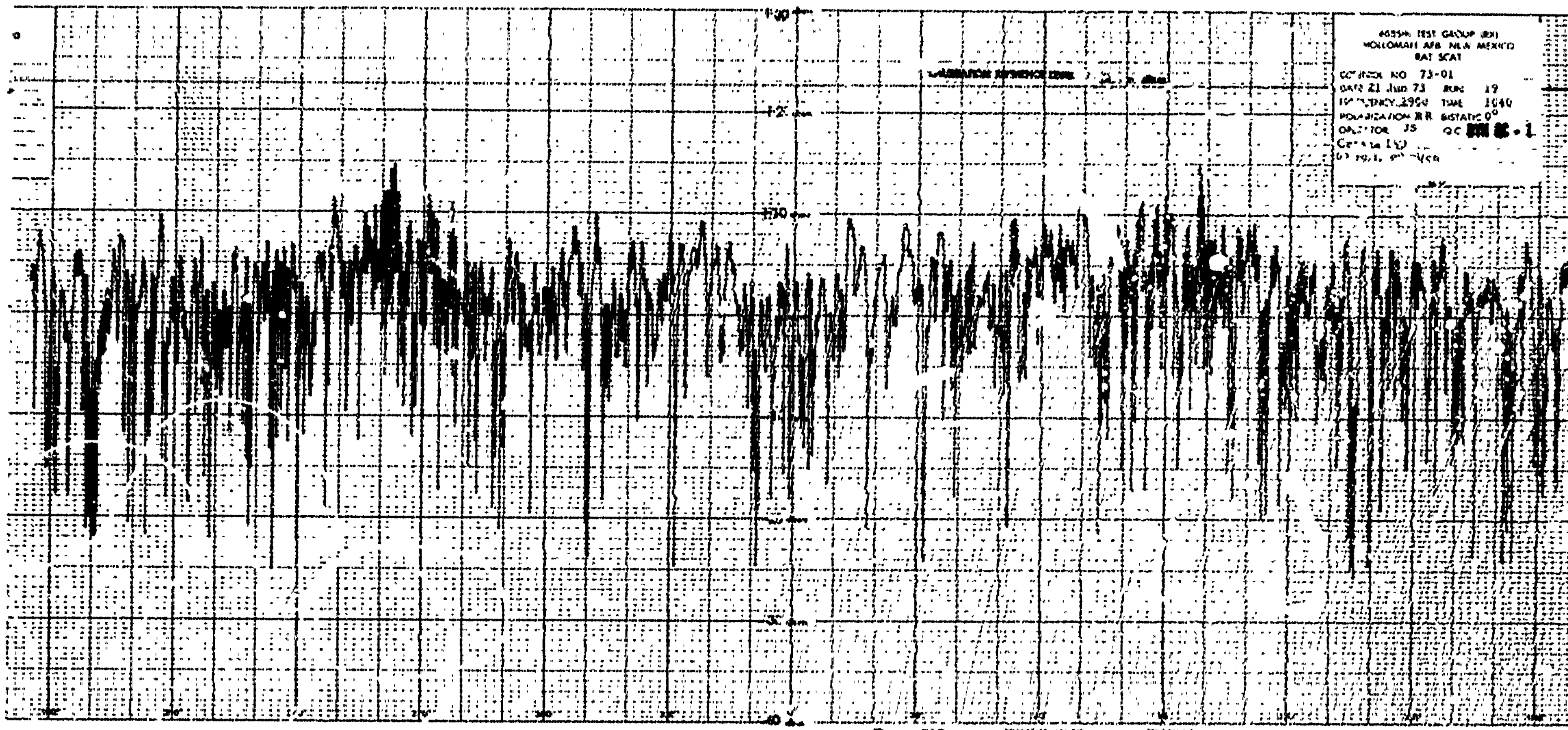


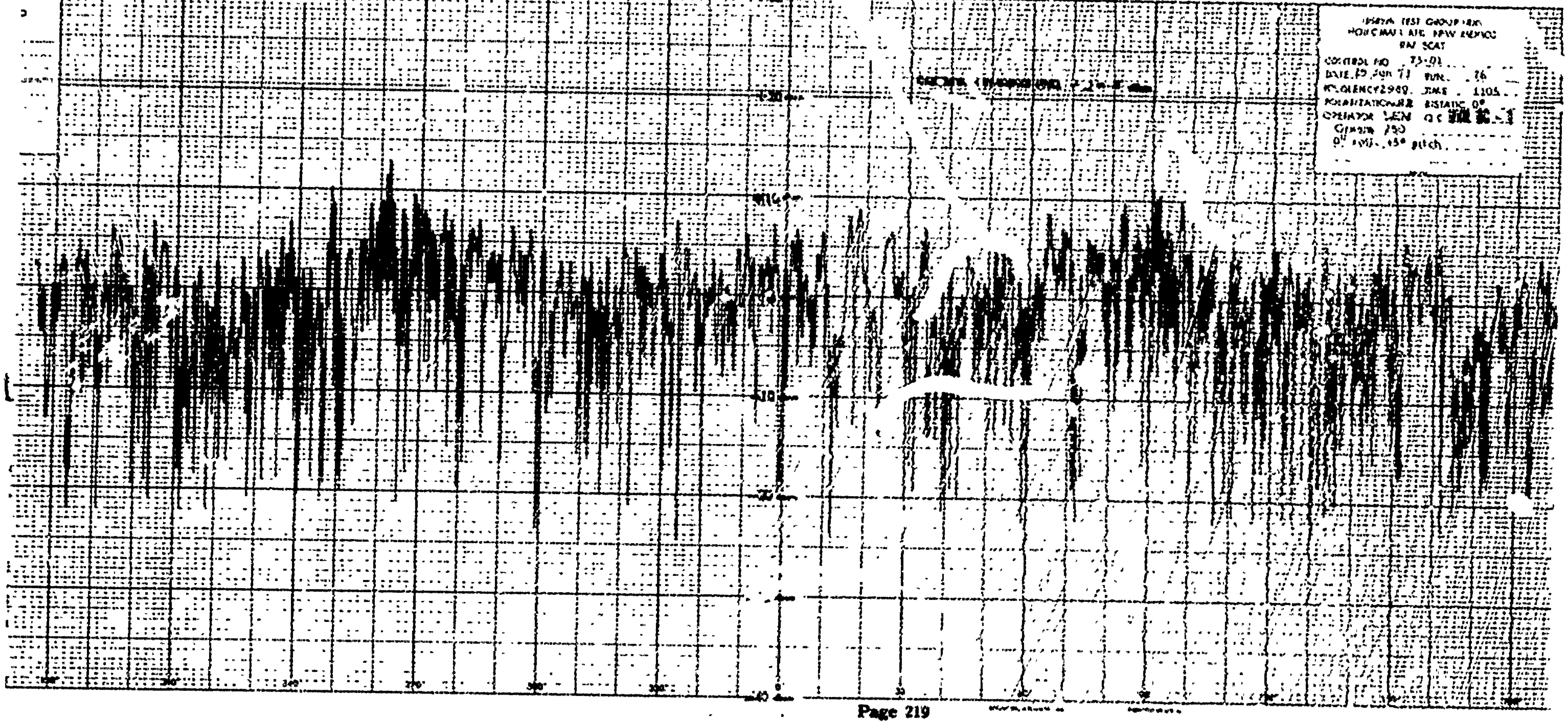

6585th TEST GROUP (RA)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 23-01
DATE 22 Jun 73 RUN 57
FREQUENCY 4900 TIME 1745
POLARIZATION VV
Background, columns 90/91
with 0° roll, +10° pitch
transitions

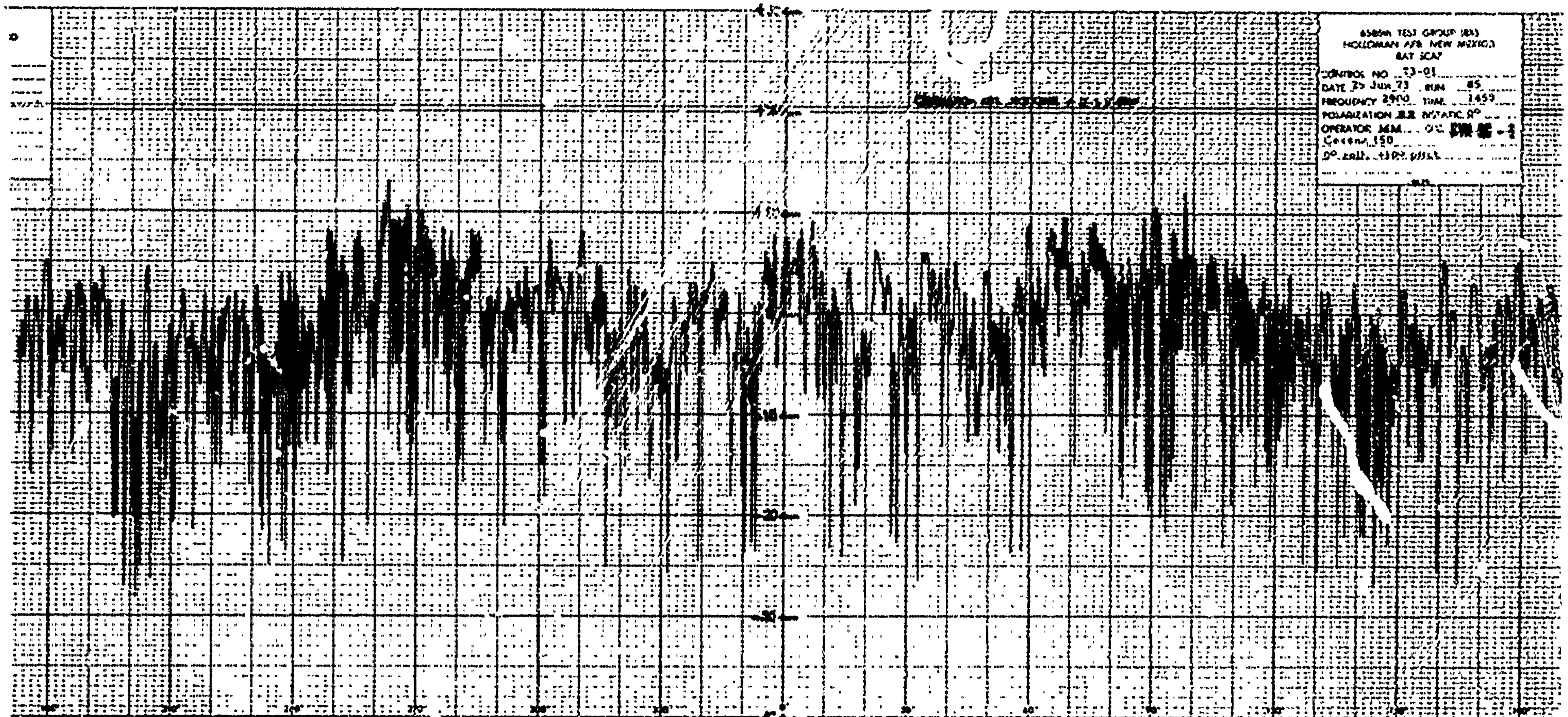

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 3 Aug 73 RUN 626
FREQUENCY 2900 TIME 1935
POLARIZATION VV BISTATIC 0°
OPERATOR MM QC
Background with 45° Roll.
-10° Pitch Transitions
CALIBRATION REFERENCE LEVEL

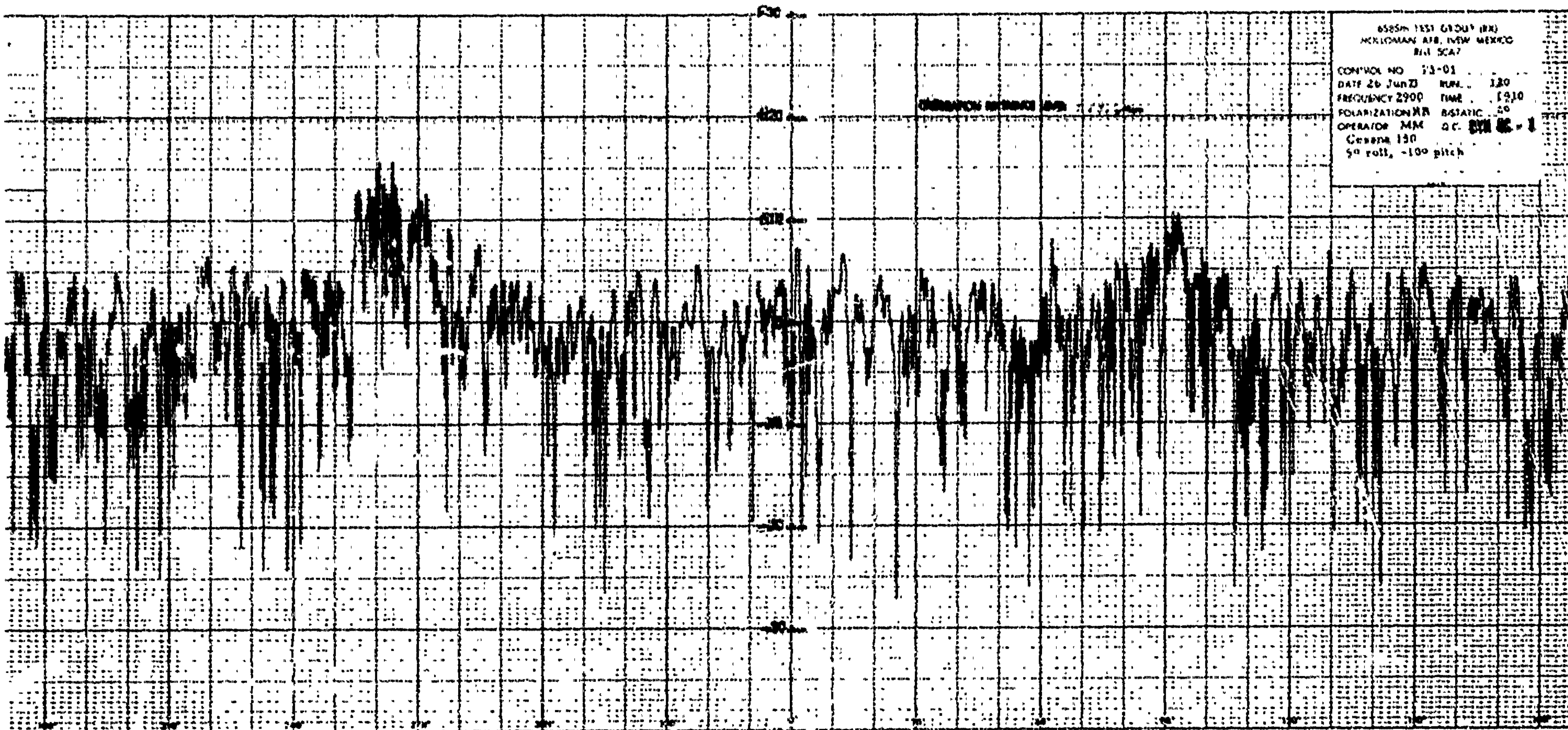

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 22 Jun 73 RUN 44
FREQUENCY 2900 TIME 0915
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
0° roll, -10° pitch
+20
+10
-10
-20
-30
-40
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

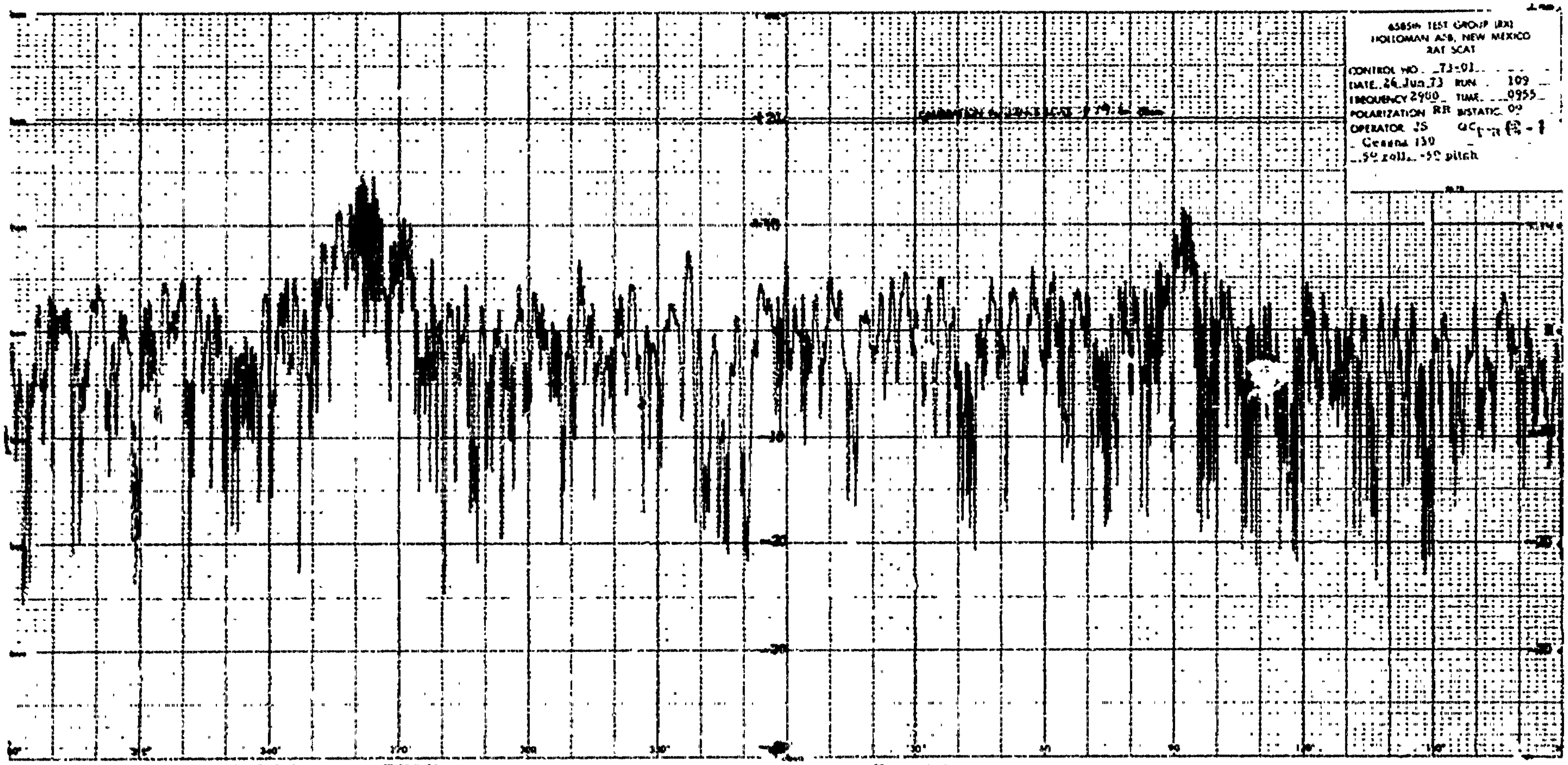

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73:01
DATE 21 Jun 73 RUN 50
FREQUENCY 2900 TIME
POLARIZATION H BISTATIC 0°
OPERATOR MM Q.C.
Cessna 150
0° roll, -5° pitch

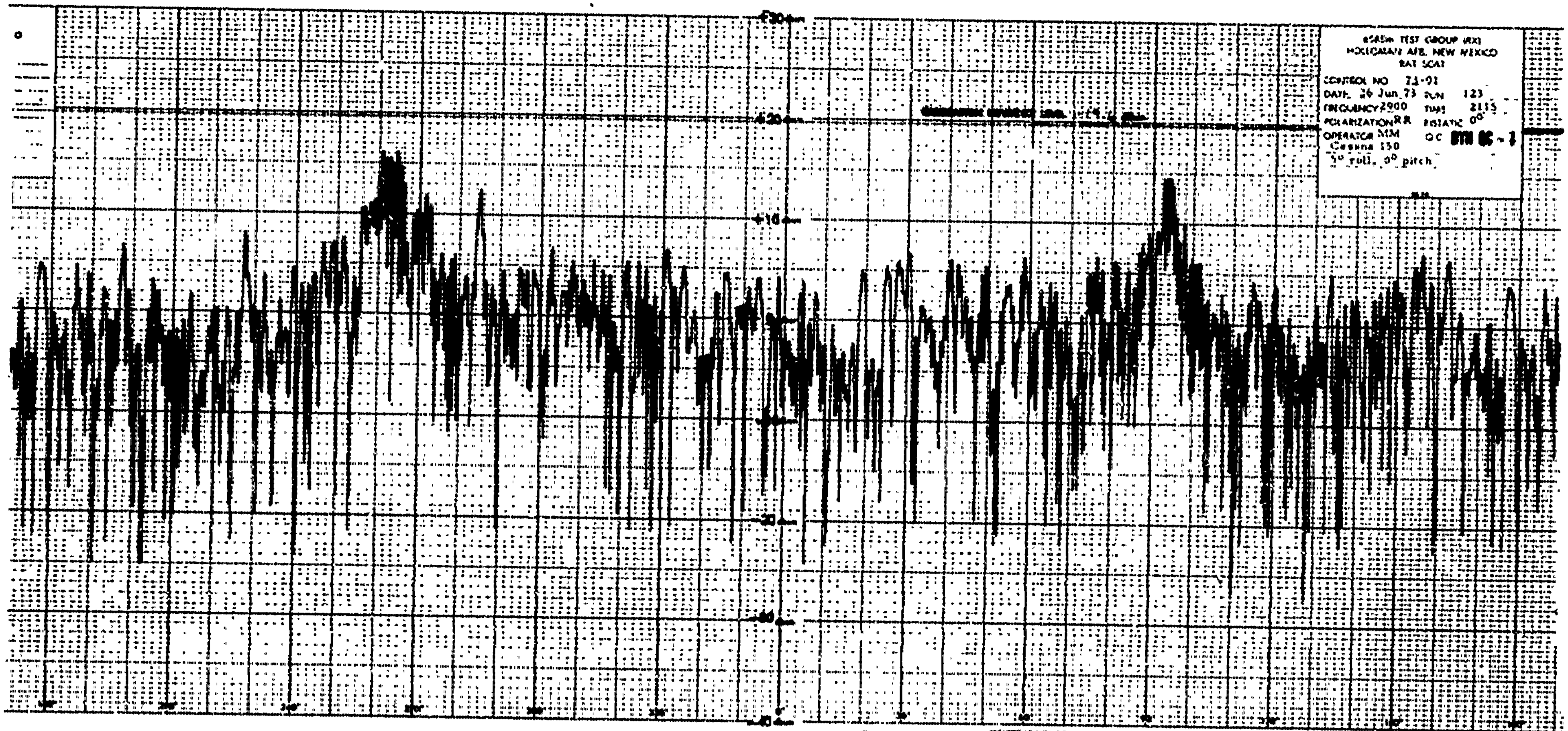

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 21 Jun 73 RUN 19
FREQUENCY 2950 TIME 1040
POLARIZATION RR BISTATIC 0°
OPERATOR JS QC [redacted] - 1
CALIBRATION REFERENCE LEVEL
+30 dbm
+20 dbm
+10 dbm
-30 dbm
-40 dbm

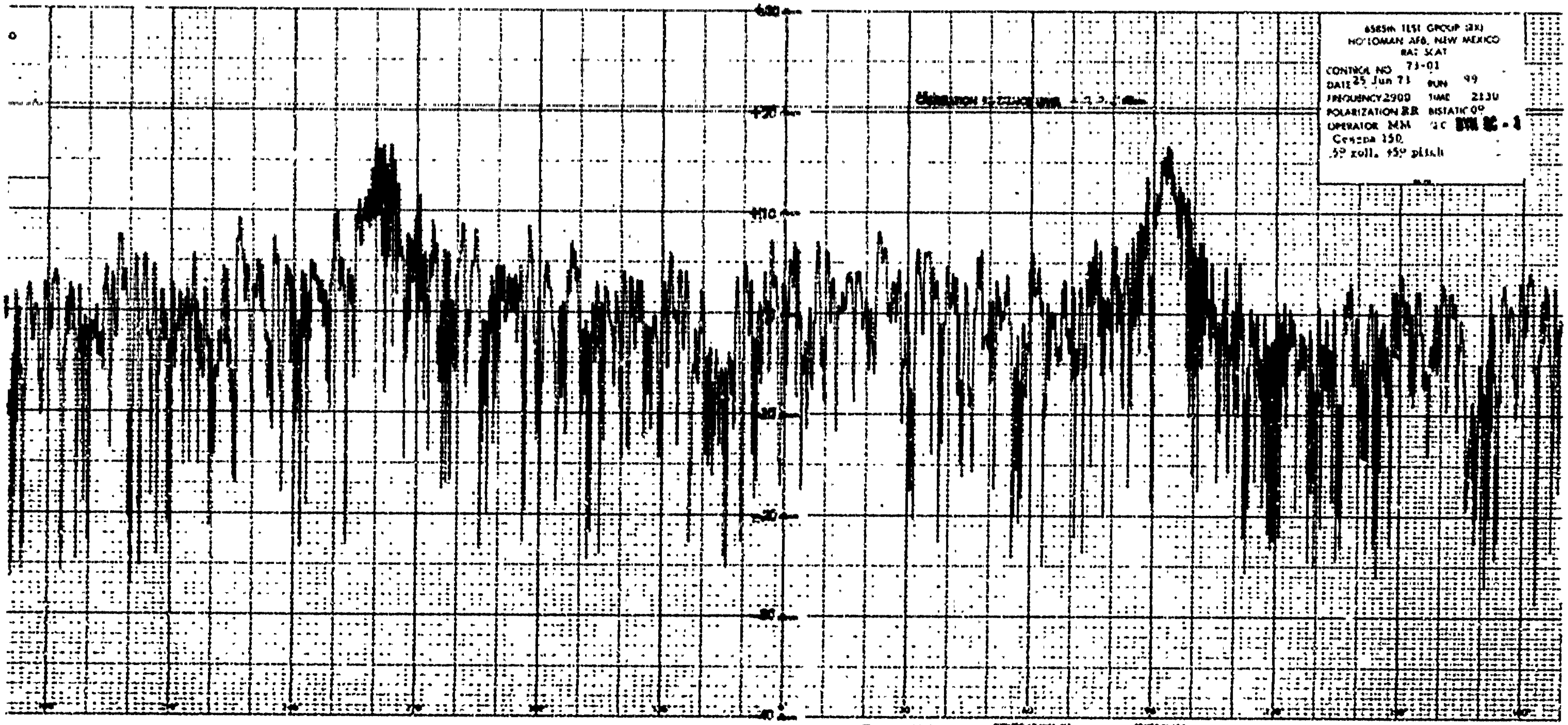

RAT SCAT
CONTROL NO 73-01
RUN 76
TIME 1105
BISTATIC 0°
OPERATOR LEN

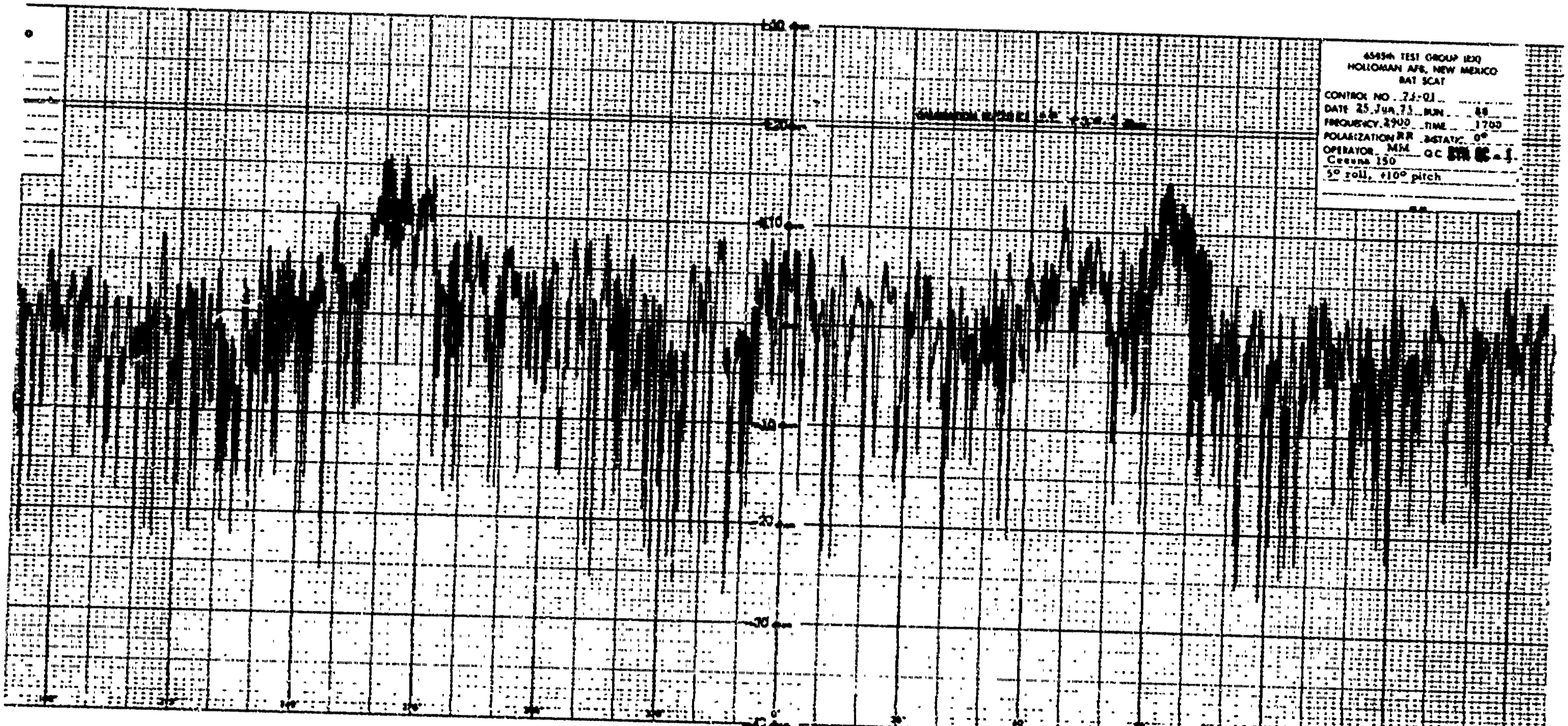

6580th TEST GROUP (RS)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73 RUN 65
FREQUENCY 2900 TIME 1459
POLARIZATION HH
OPERATOR MM
Cessna 150


6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
CONTROL NO 73-01
DATE 26 Jun73 RUN 120
FREQUENCY 2900 TIME 1910
POLARIZATION HH BISTATIC
OPERATOR MM Q.C.
Cessna 150
5° roll, -10° pitch

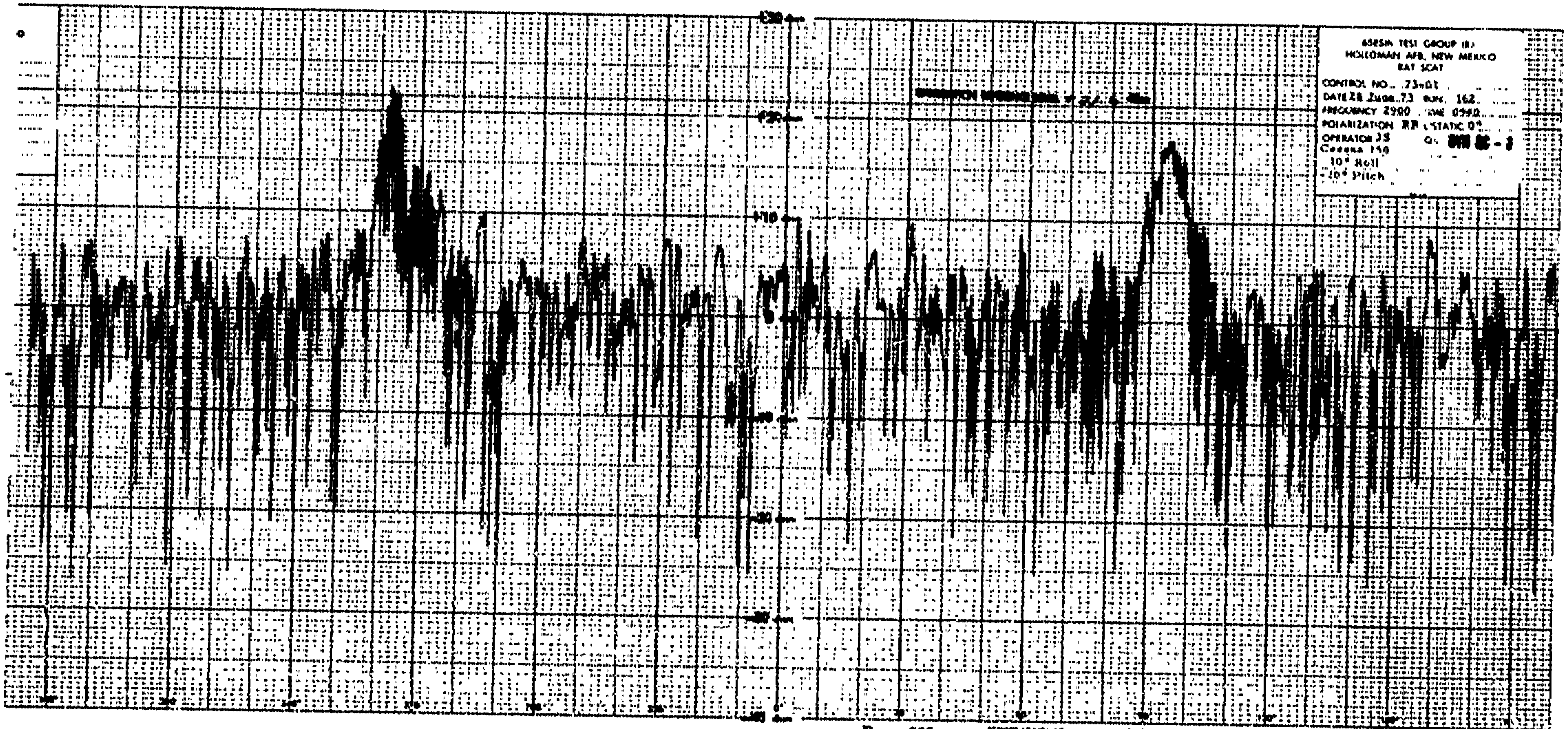

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 26 Jun 73 RUN 109
FREQUENCY 2900 TIME 0955
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
5° roll, -5° pitch
+20
+10
0
-10
-20
-30
270°
300°
330°
30°
60°
90°
120°
150°

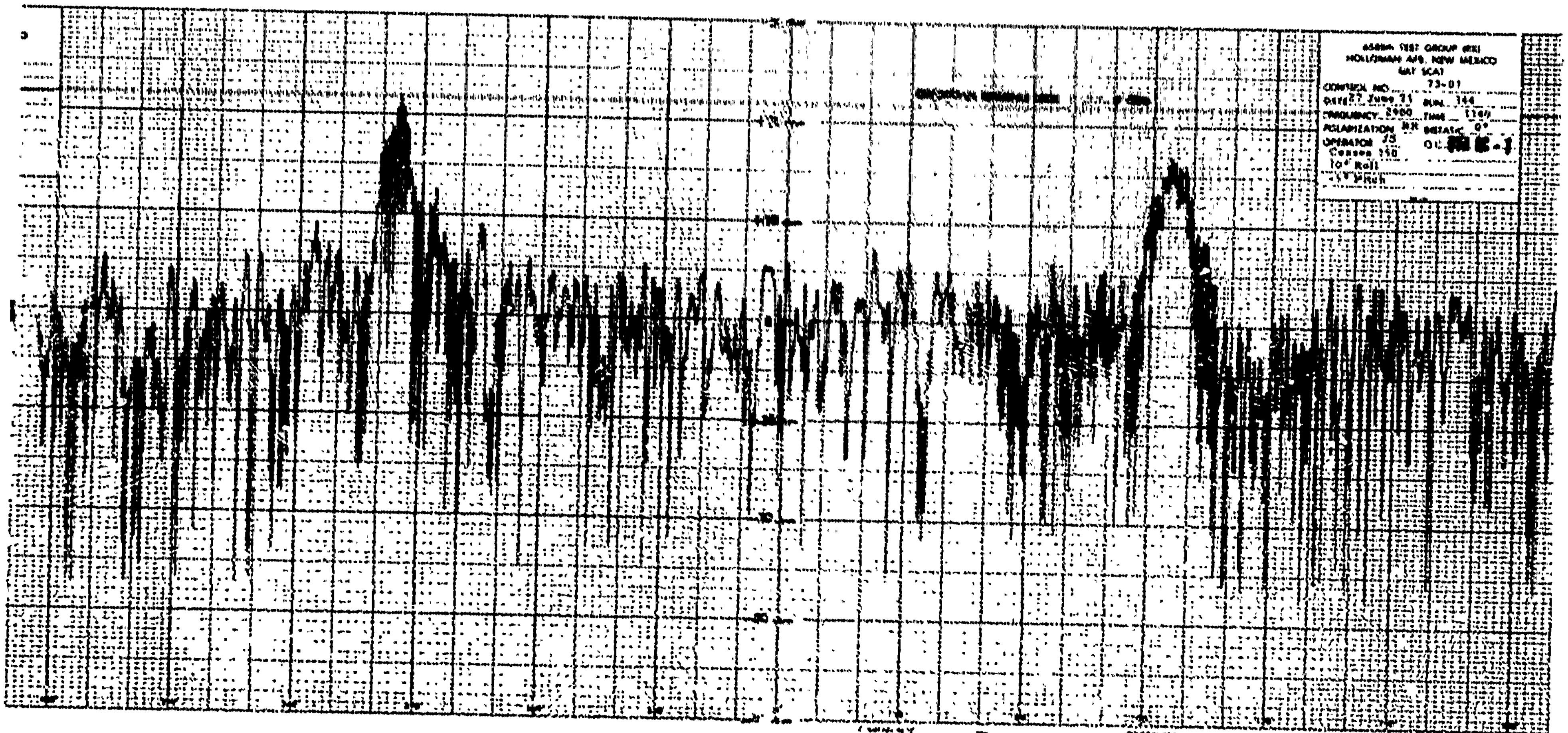

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-91
DATE 26 Jun 73 RUN 123
FREQUENCY 2900 TIME 2115
POLARIZATION RR BISTATIC 0°
OPERATOR MM
Cessna 150
5° roll, 0° pitch

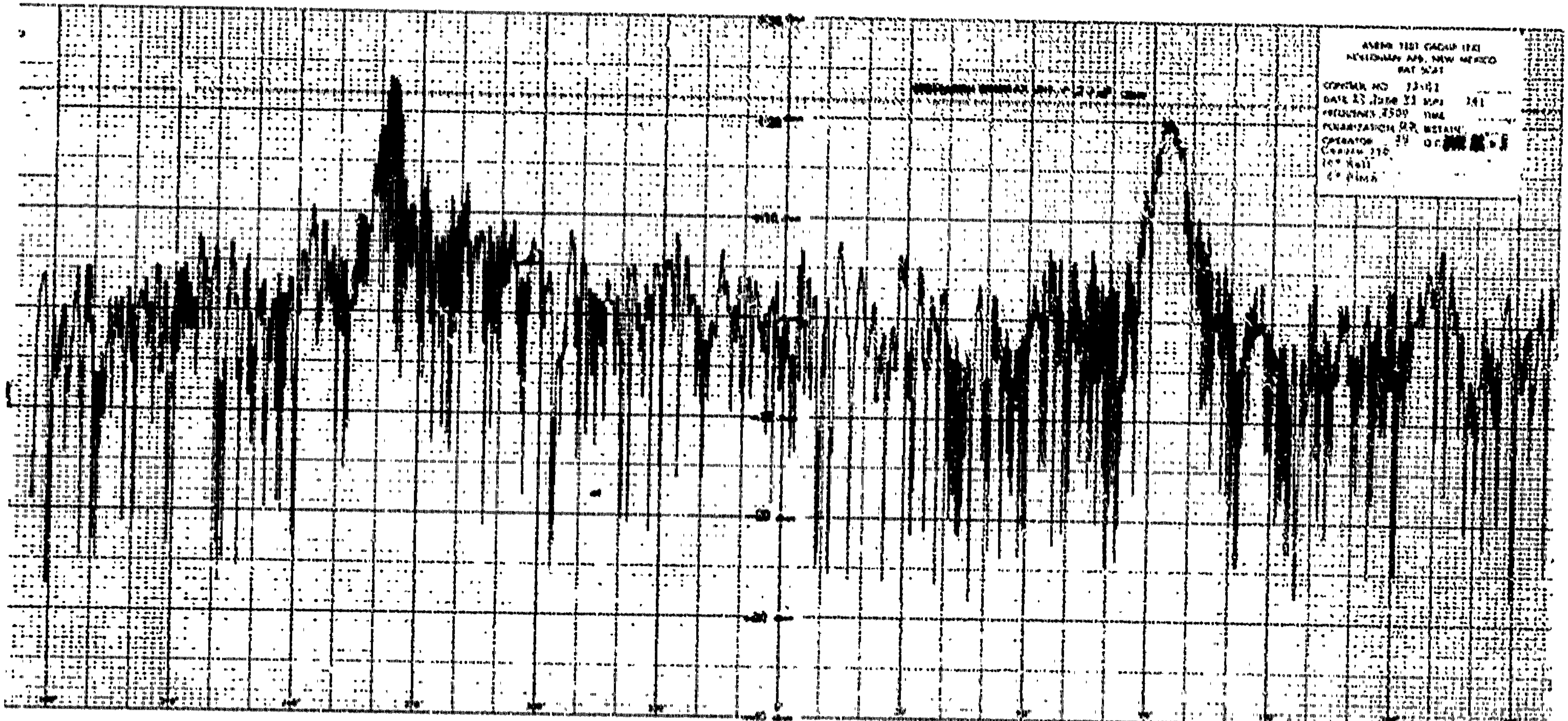

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 25 Jun 73 RUN 99
FREQUENCY 2900 TIME 2130
POLARIZATION RR BISTATIC 0°
OPERATOR MM
Cessna 150
-5° roll, +5° pitch

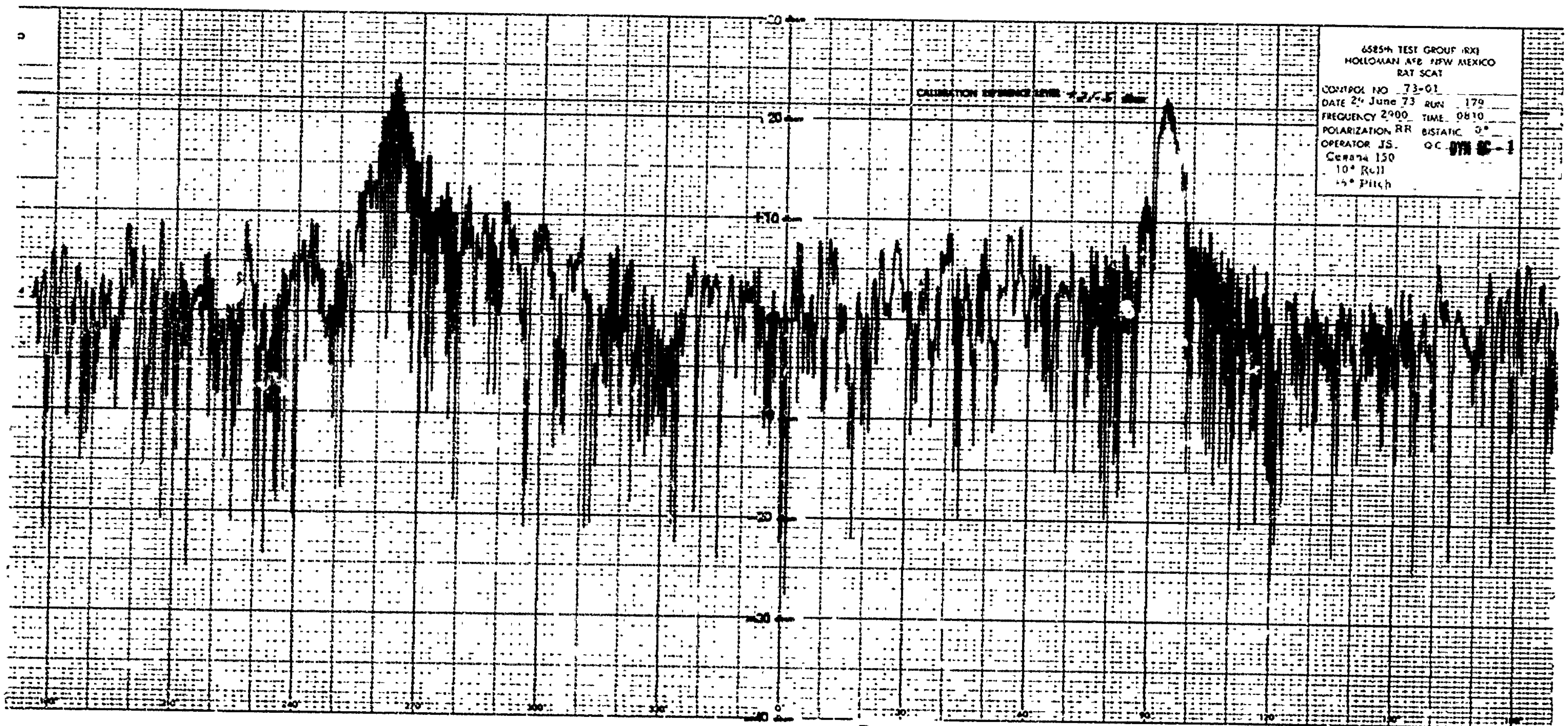


6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 74-01
DATE 25 Jun 73 RUN 88
FREQUENCY 2900 TIME 1700
POLARIZATION RR BISTATIC 0°
OPERATOR MM QC
Cessna 150
5° roll, +10° pitch

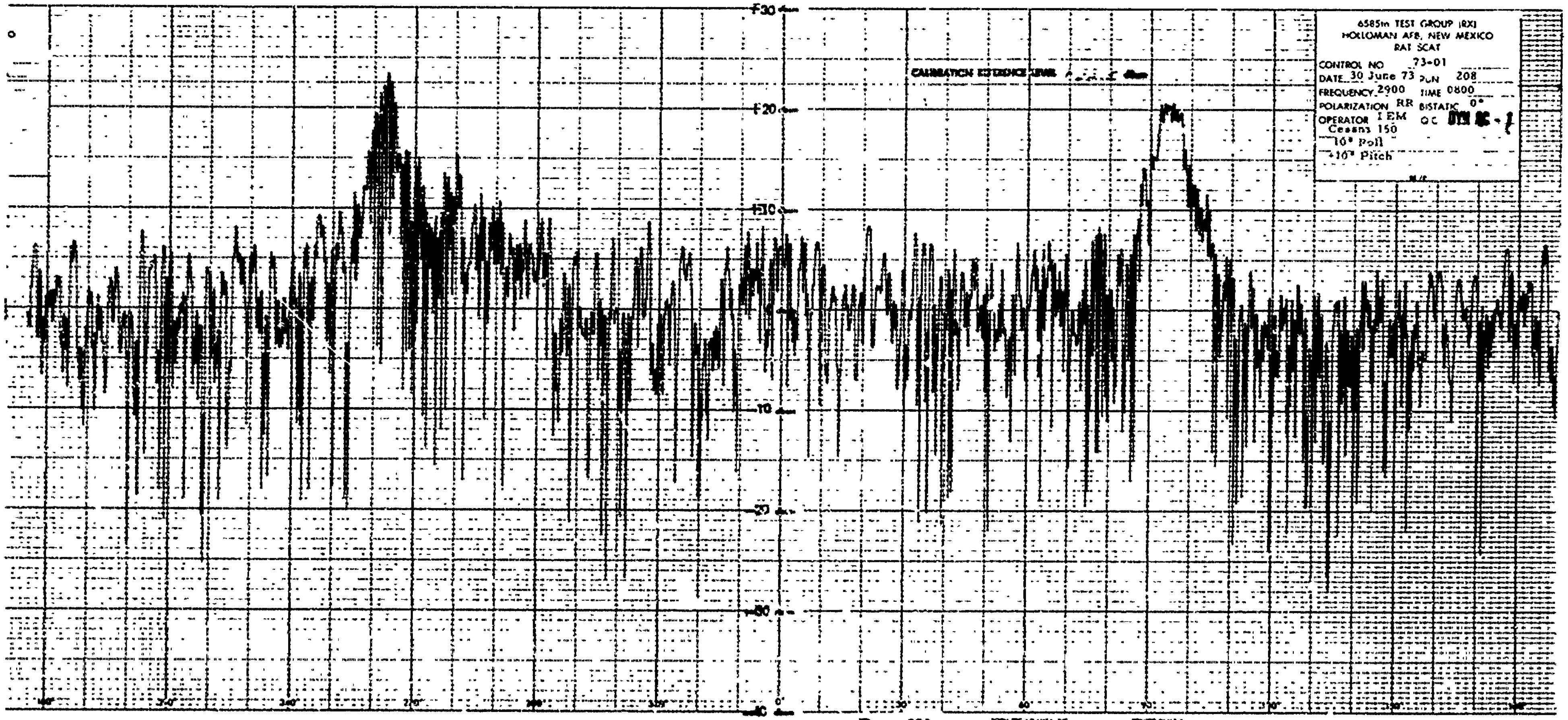

6585th TEST GROUP (B)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 28 June 73 RUN 162
FREQUENCY 2900 TIME 0940
POLARIZATION RR STATIC 0°
OPERATOR JS Q: [redacted]
Cessna 150
10° Roll
-10° Pitch

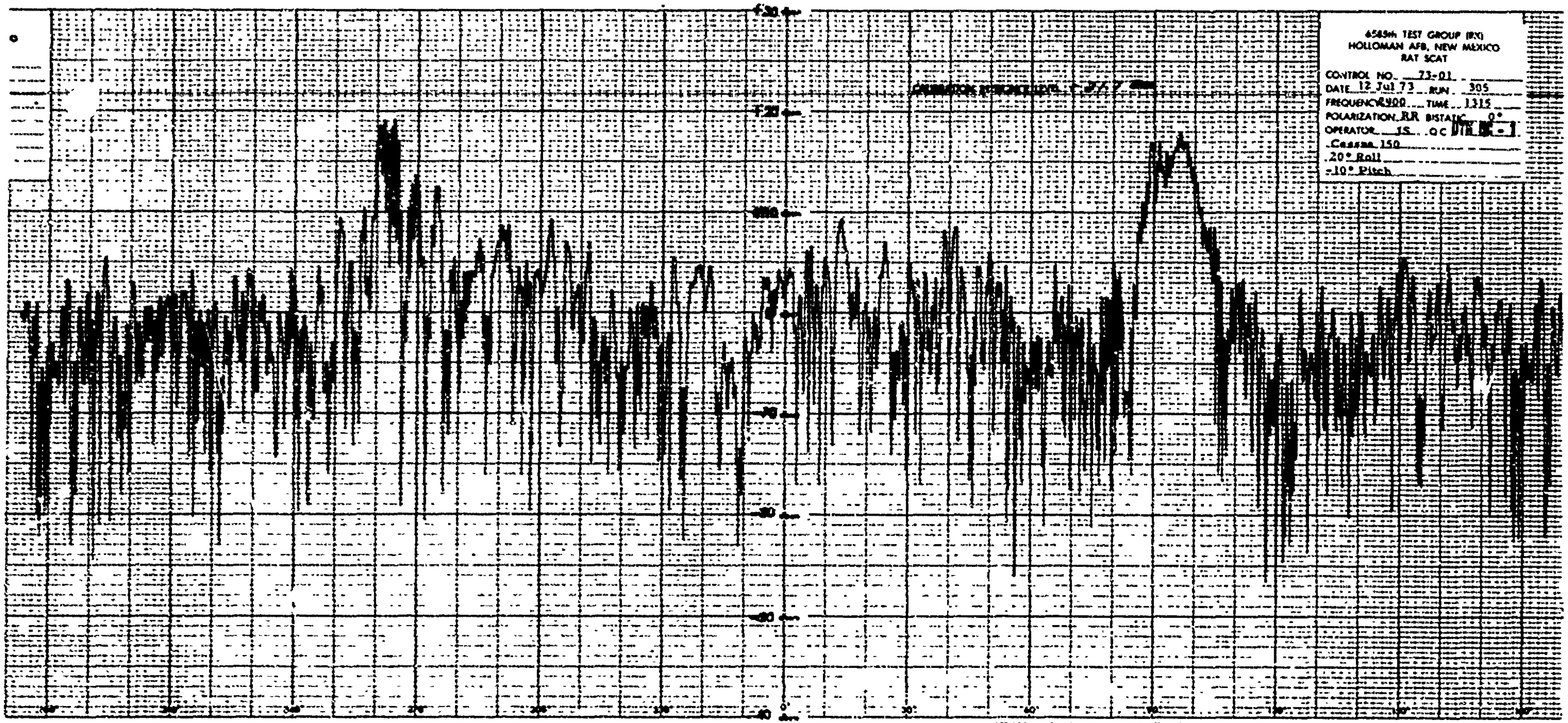

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
SAT SCAT
CONTROL NO. 73-01
DATE 27 June 71 RUN 144
FREQUENCY 2900 TIME 1144
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
10° Roll
-5° Pitch

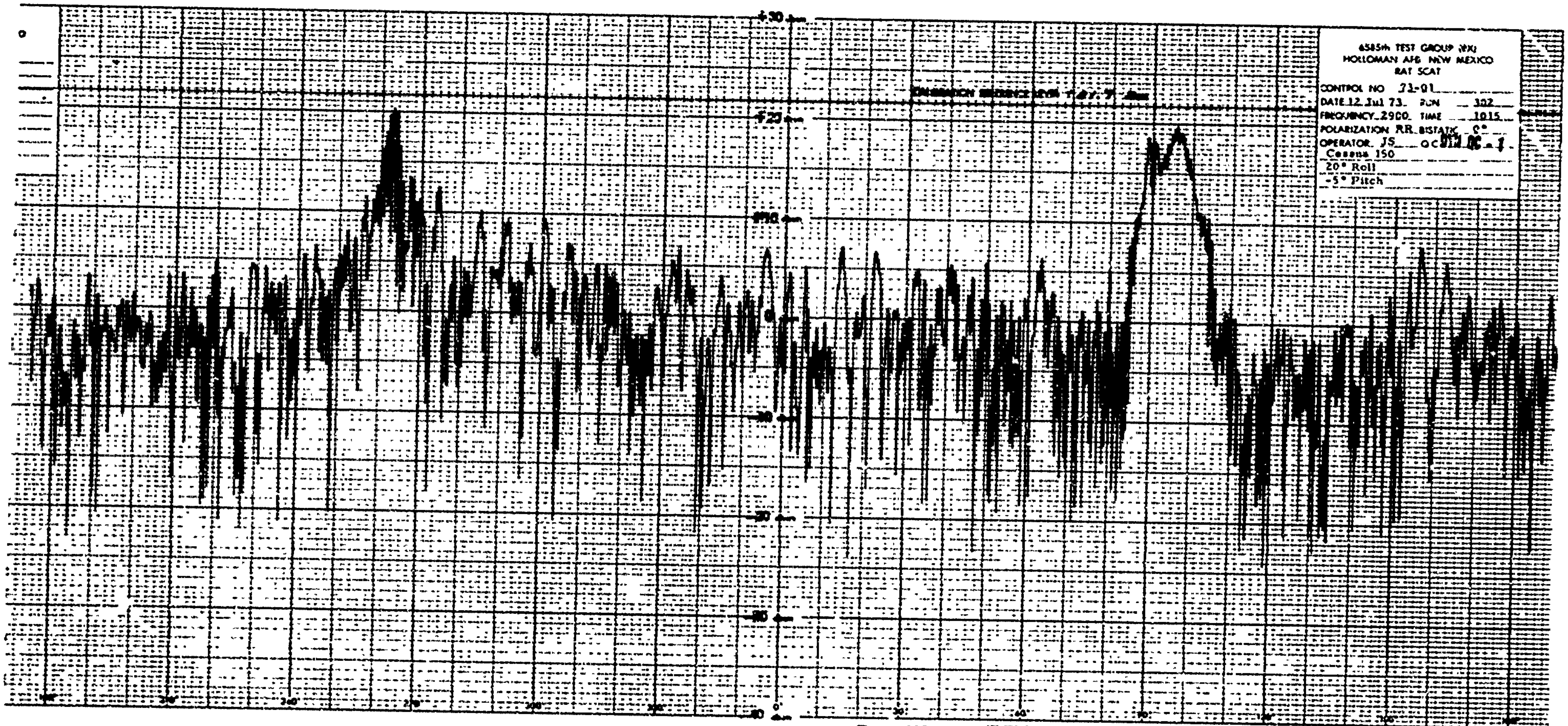

NEW MEXICO
OPERATOR



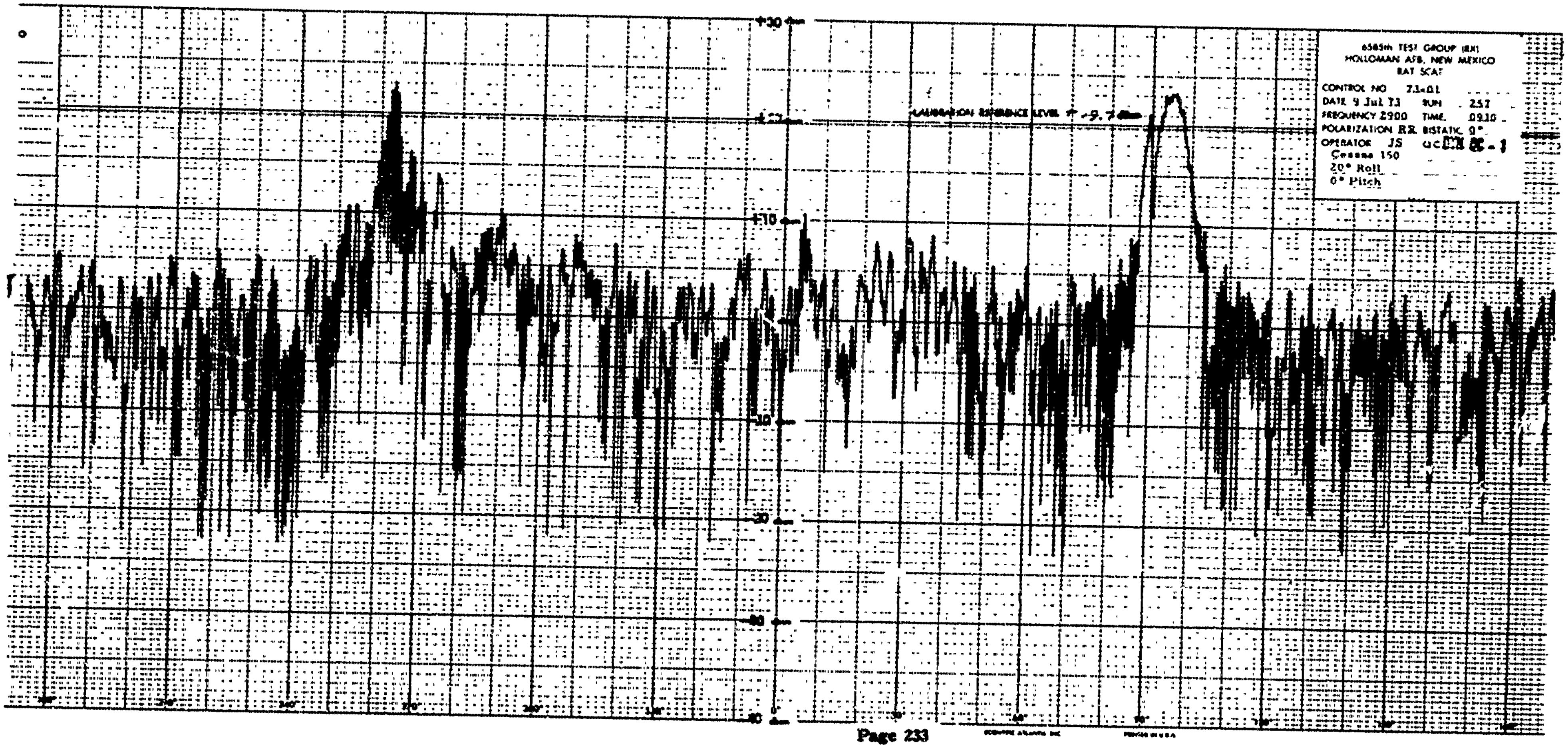
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 24 June 73 RUN 179
FREQUENCY 2900 TIME 0810
POLARIZATION RR BISTATIC 0°
OPERATOR JS. QC
Cessna 150
10° Roll
5° Pitch
CALIBRATION REFERENCE LEVEL
20 dbsm
10 dbsm
0
10 dbsm
20 dbsm
30 dbsm
40 dbsm
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

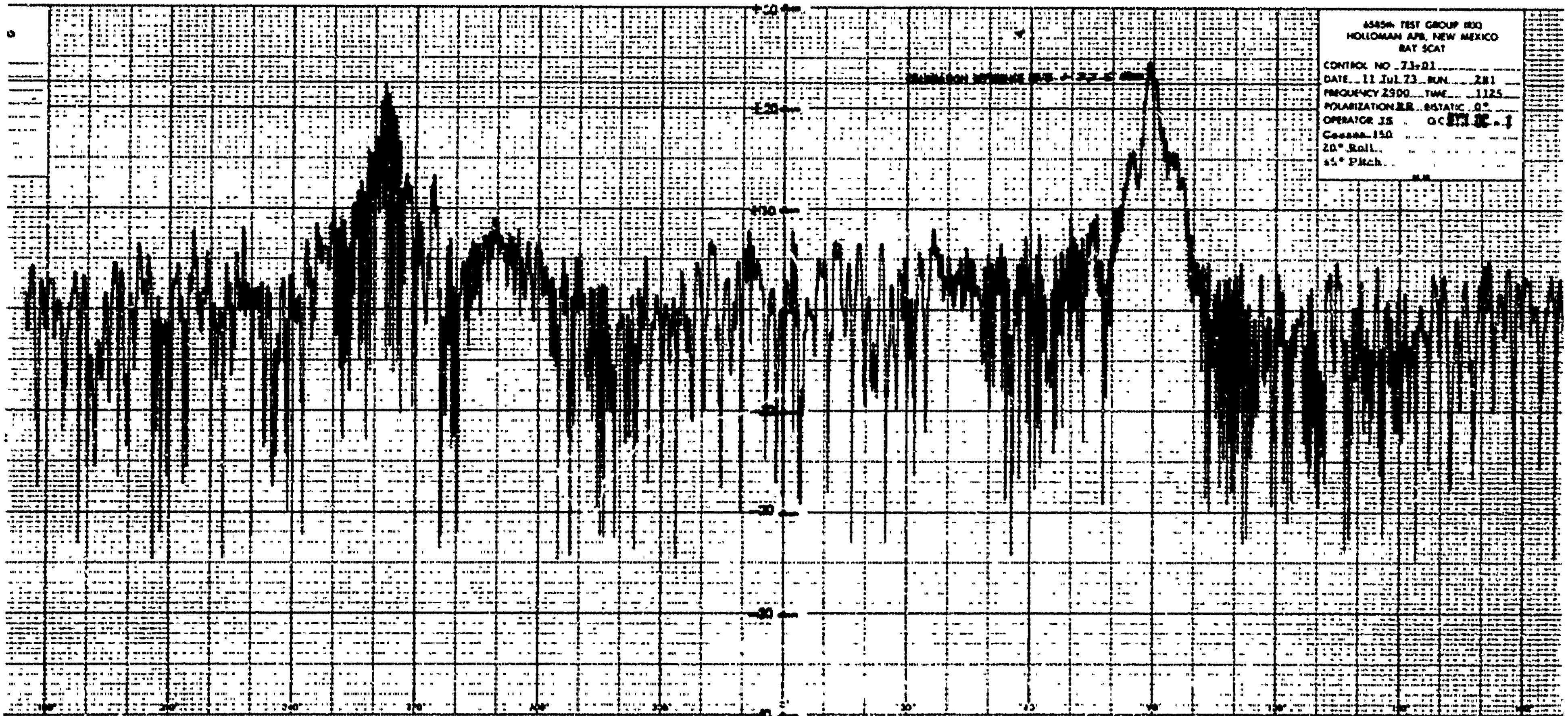

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 30 June 73 RUN 208
FREQUENCY 2900 TIME 0800
POLARIZATION RR BISTATIC 0°
OPERATOR IEM
Cessna 150
10° Roll
+10° Pitch
CALIBRATION REFERENCE LEVEL
+30 dbsm
+20 dbsm
+10 dbsm
0
-10 dbsm
-20 dbsm
-30 dbsm
-40 dbsm

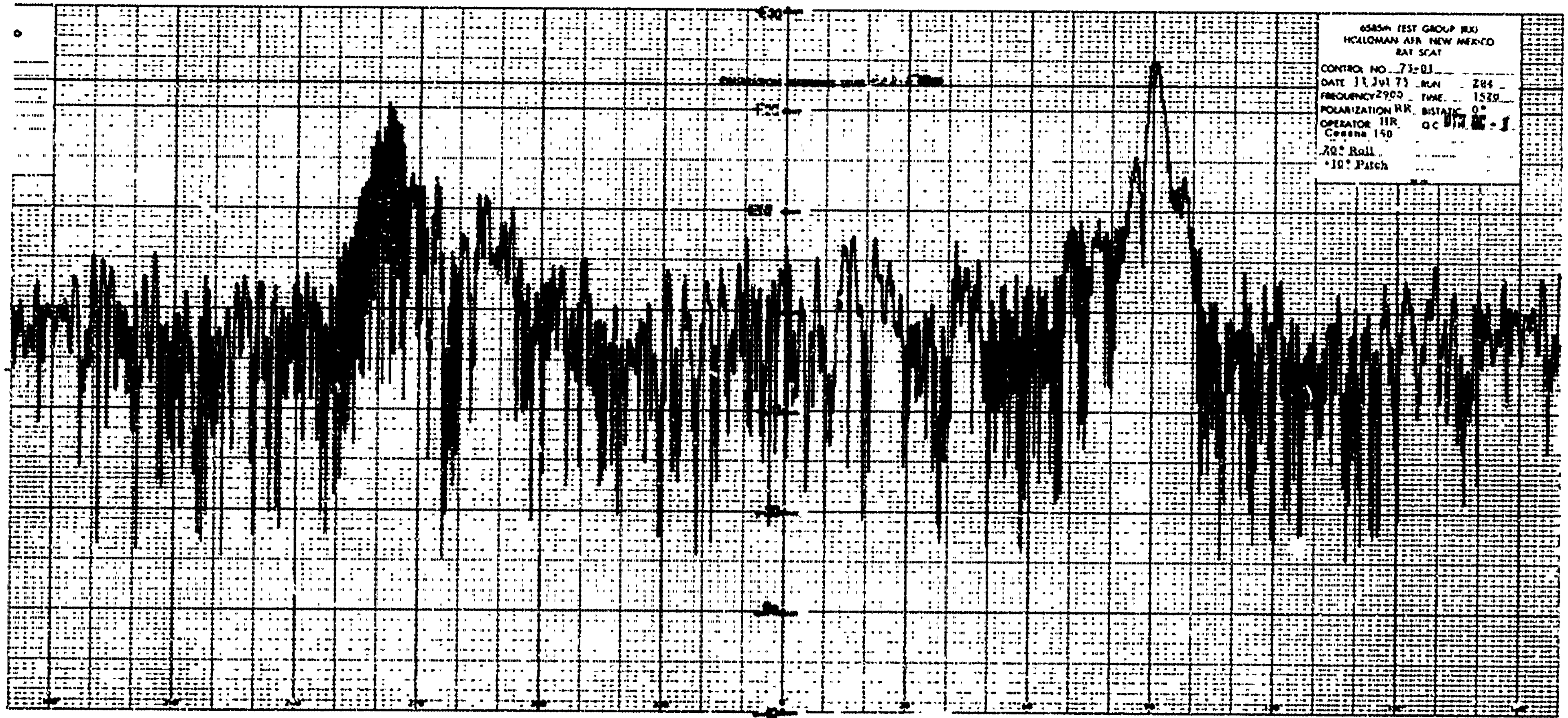

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 12 Jul 73 RUN 305
FREQUENCY 8900 TIME 1315
POLARIZATION RR BISTATIC 0°
OPERATOR JS QC
Cessna 150
20° Roll
-10° Pitch

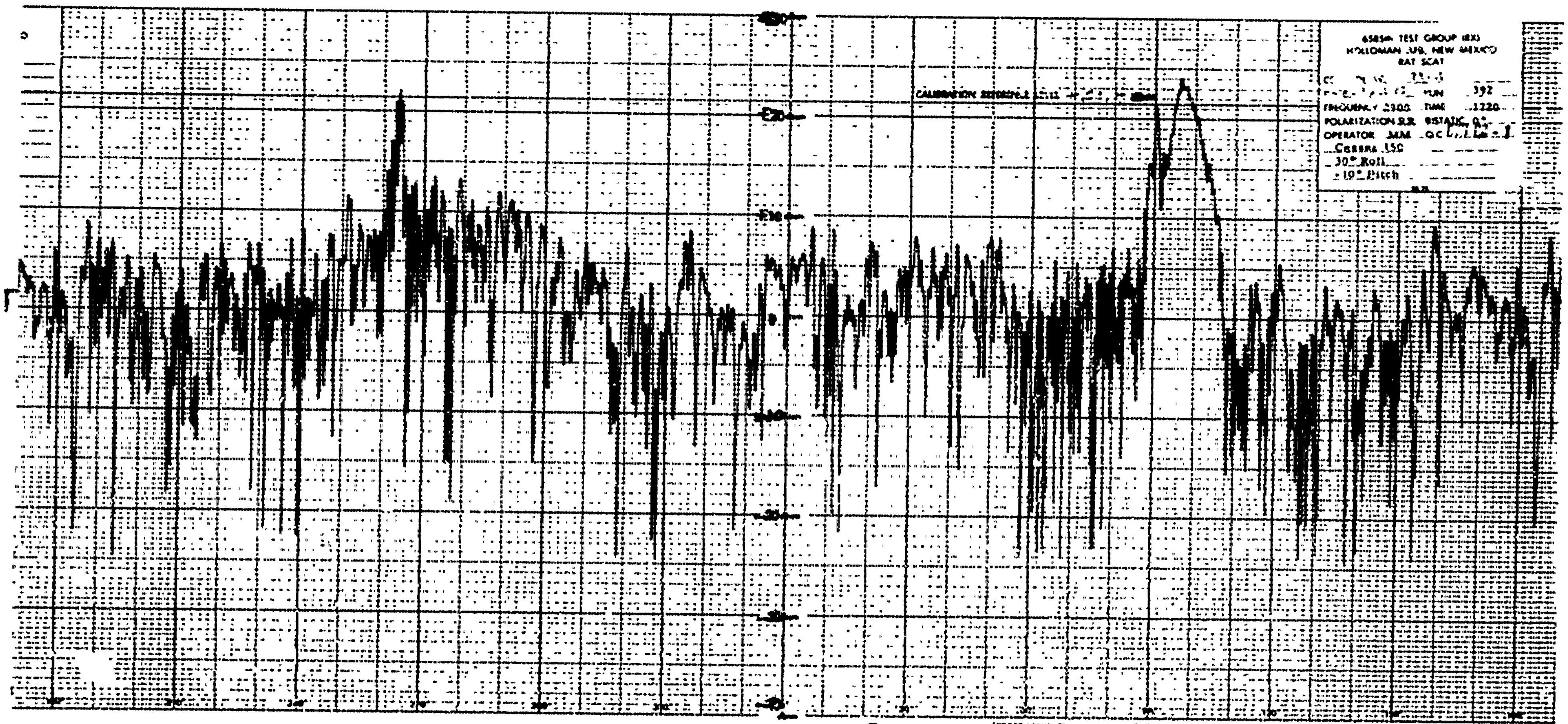


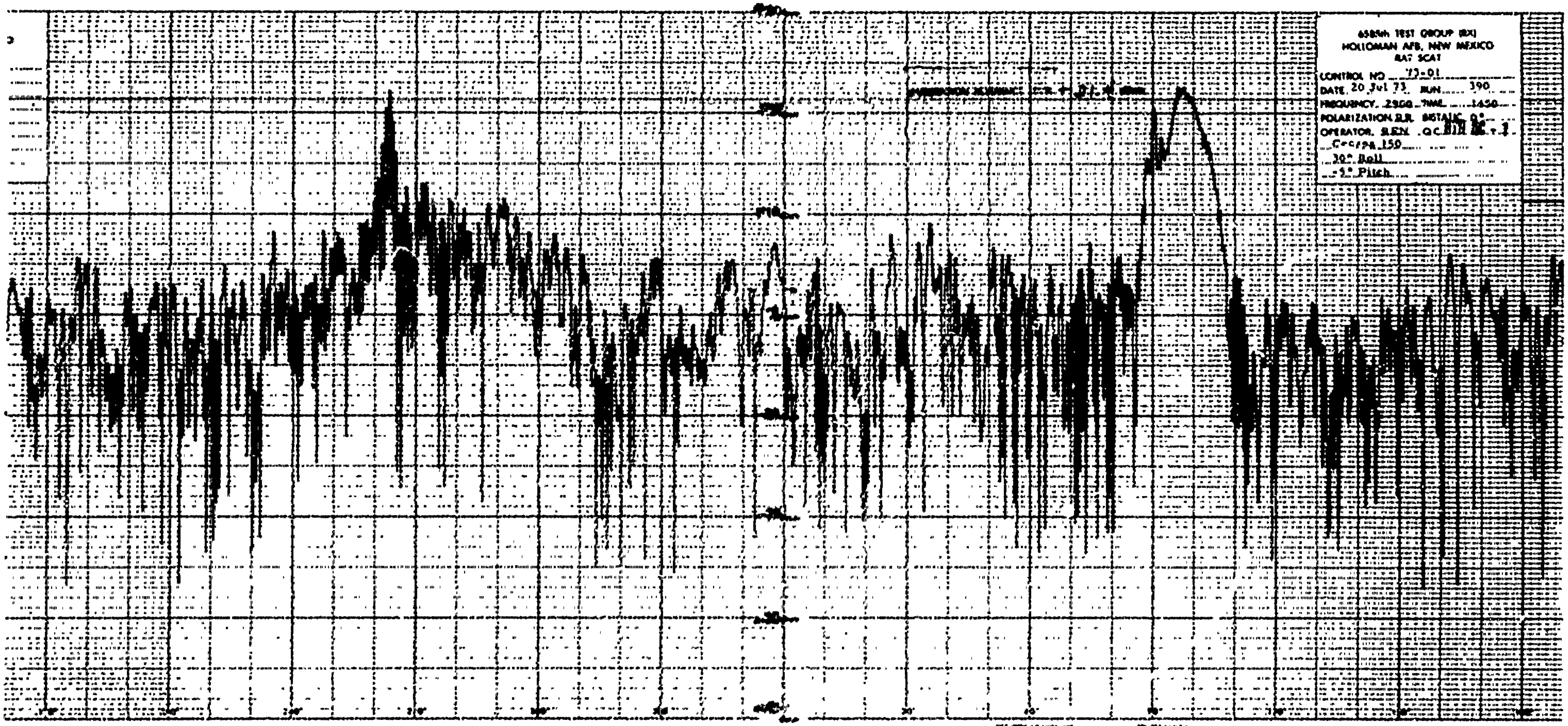
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 12 Jul 73 RUN 302
FREQUENCY 2900 TIME 1015
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
-5° Pitch
+30
+20
0

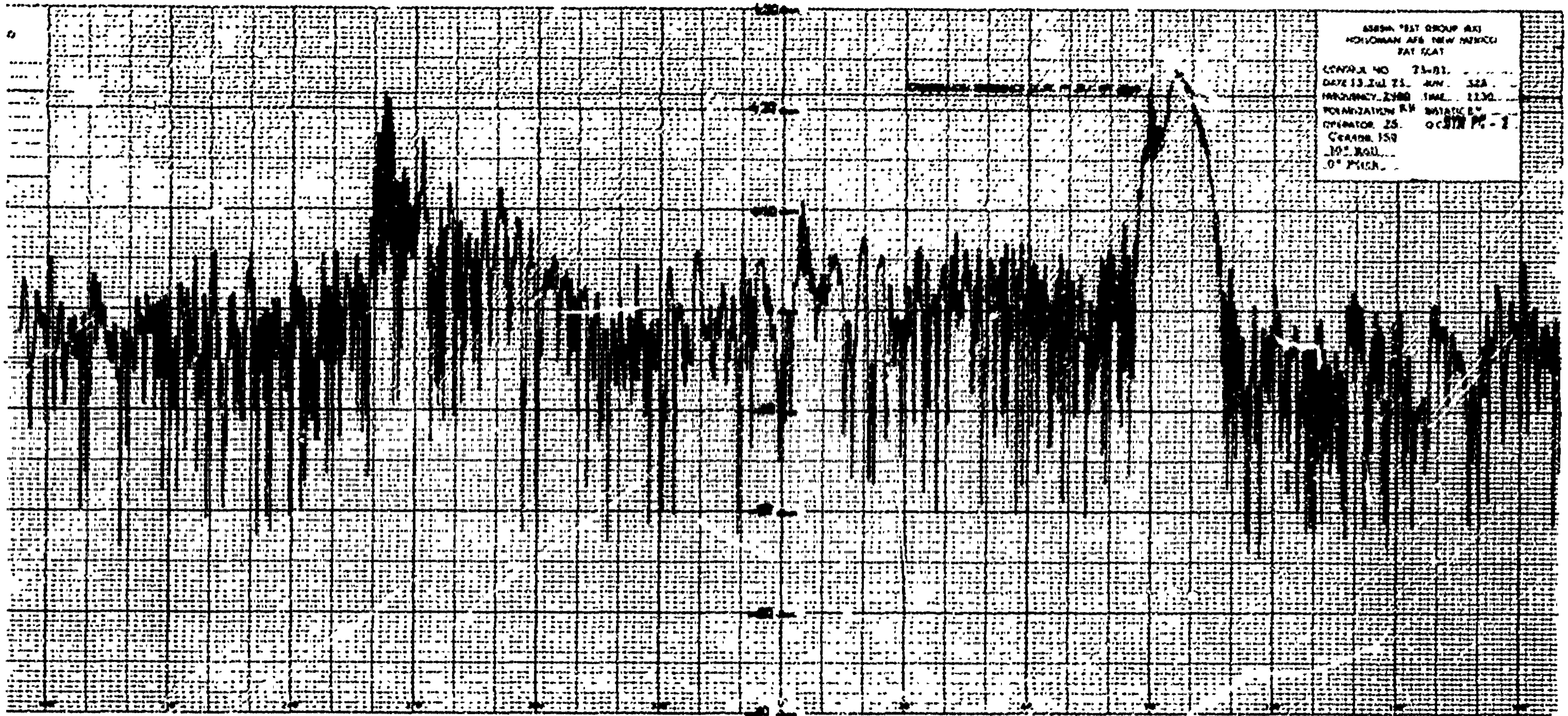

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 9 Jul 73 RUN 257
FREQUENCY 2900 TIME 0910
POLARIZATION RR BISTATIC 9°
OPERATOR JS
Cessna 150
20° Roll
0° Pitch
CALIBRATION REFERENCE LEVEL
+30 dbm
+10 dbm
-10 dbm
-30 dbm
-40 dbm
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°

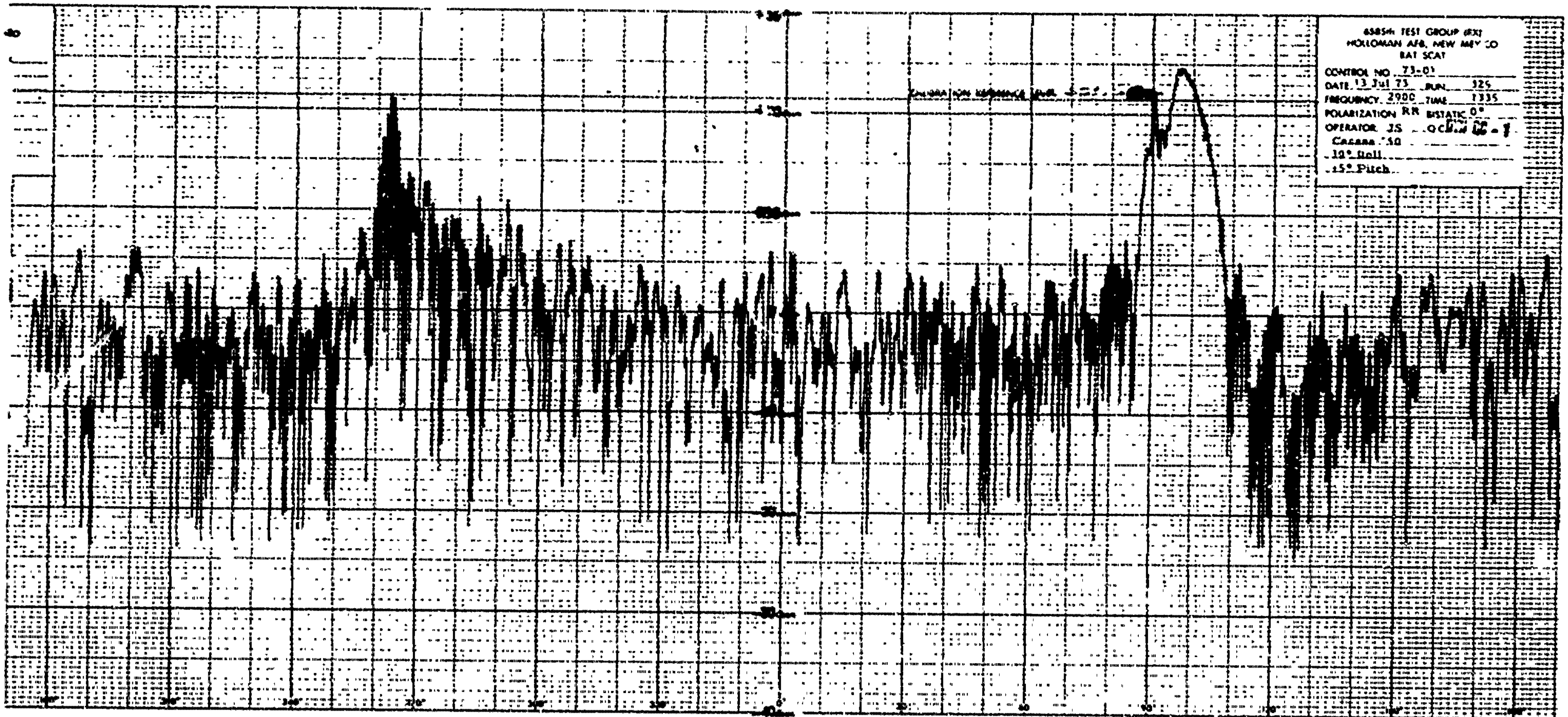

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 11 Jul 73 RUN 281
FREQUENCY 2900 TIME 1125
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
20° Roll
±5° Pitch

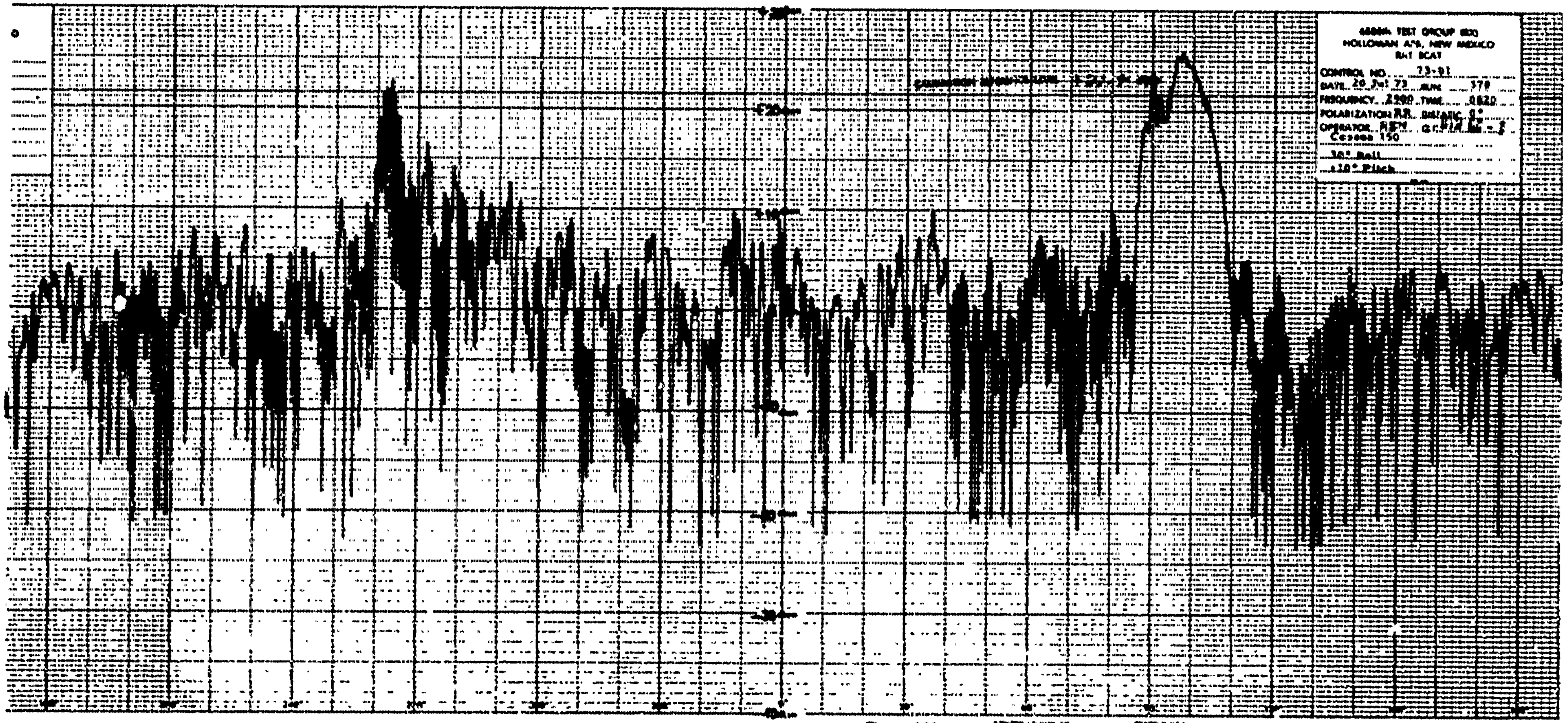

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 11 Jul 73
RUN 284
FREQUENCY 2900
TIME 1530
POLARIZATION RR
BISTATIC 0°
OPERATOR HR
Cessna 150
20° Roll
+10° Pitch

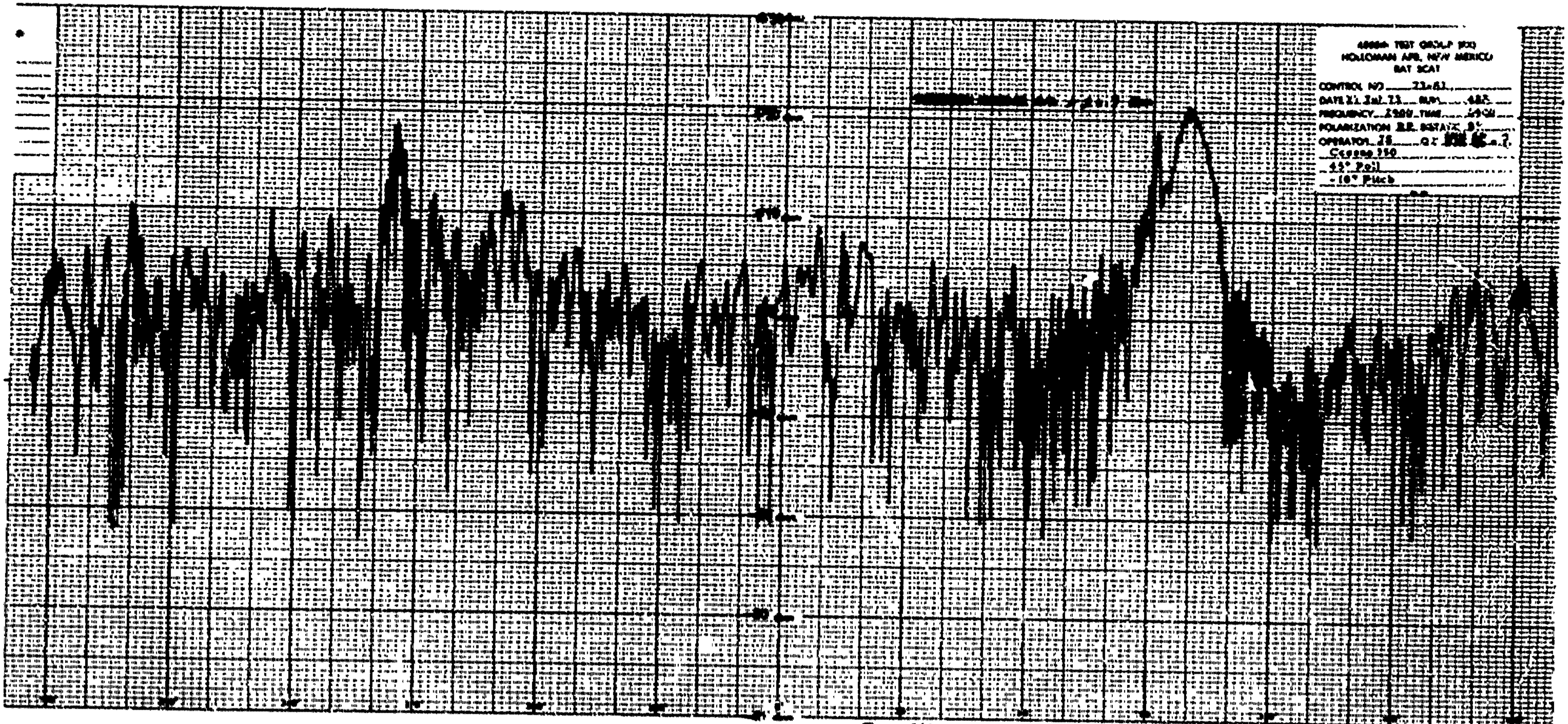

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
RUN 392
FREQUENCY 2900 TIME 1220
POLARIZATION R.R. BISTATIC 0°
OPERATOR MM
Cessna 150
30° Roll
10° Pitch
CALIBRATION REFERENCE

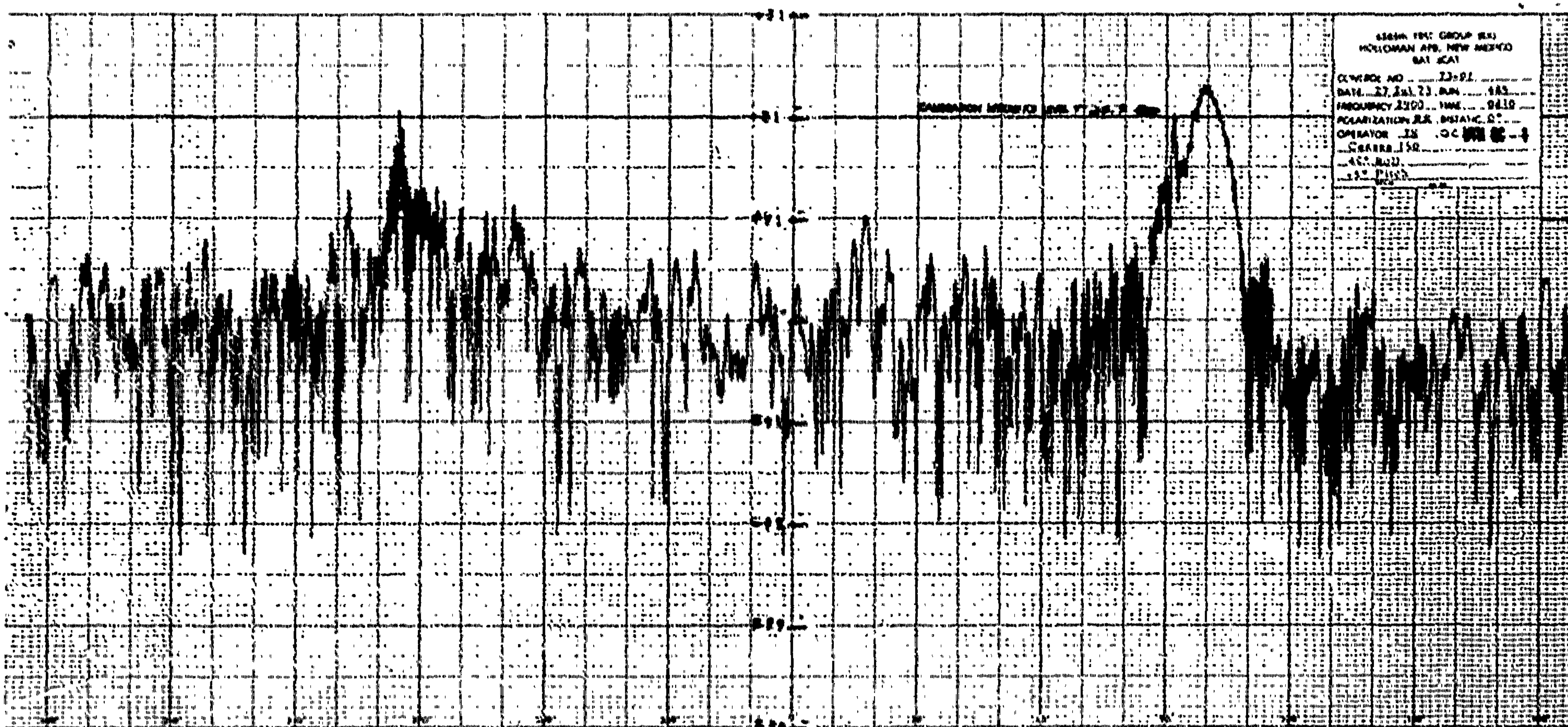

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 20 Jul 73 RUN 390
FREQUENCY 2900 TIME 1450
POLARIZATION R.R. BISTATIC 0°
OPERATOR R.E.N. Q.C.
Cessna 150
30° Roll
-5° Pitch

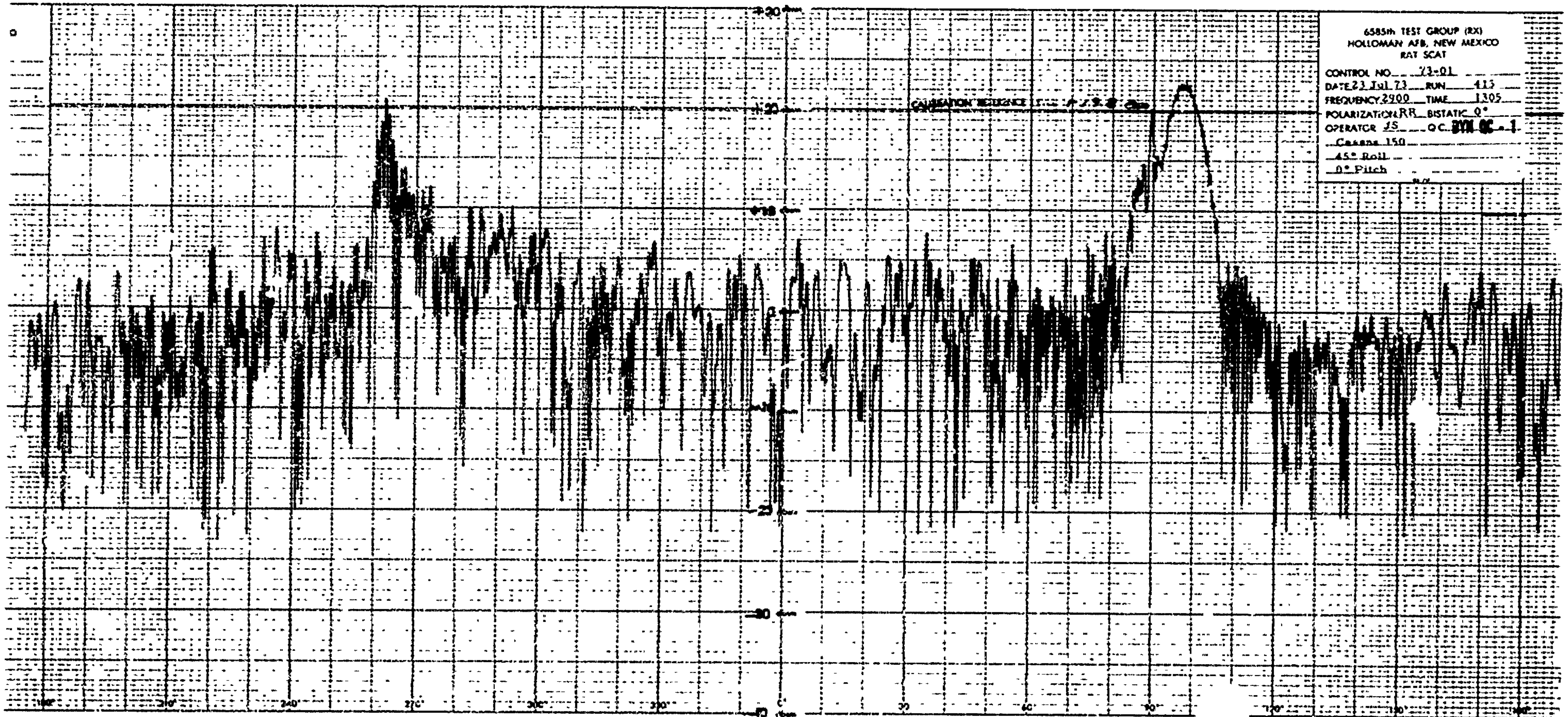

HOLLOMAN AFB NEW MEXICO
CONTROL NO 73-01
DATE 13 Jul 73
FREQUENCY
POLARIZATION
OPERATOR
10° Roll
0° Pitch


6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 13 Jul 73 RUN 325
FREQUENCY 2900 TIME 1335
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
10° Roll
±5° Pitch

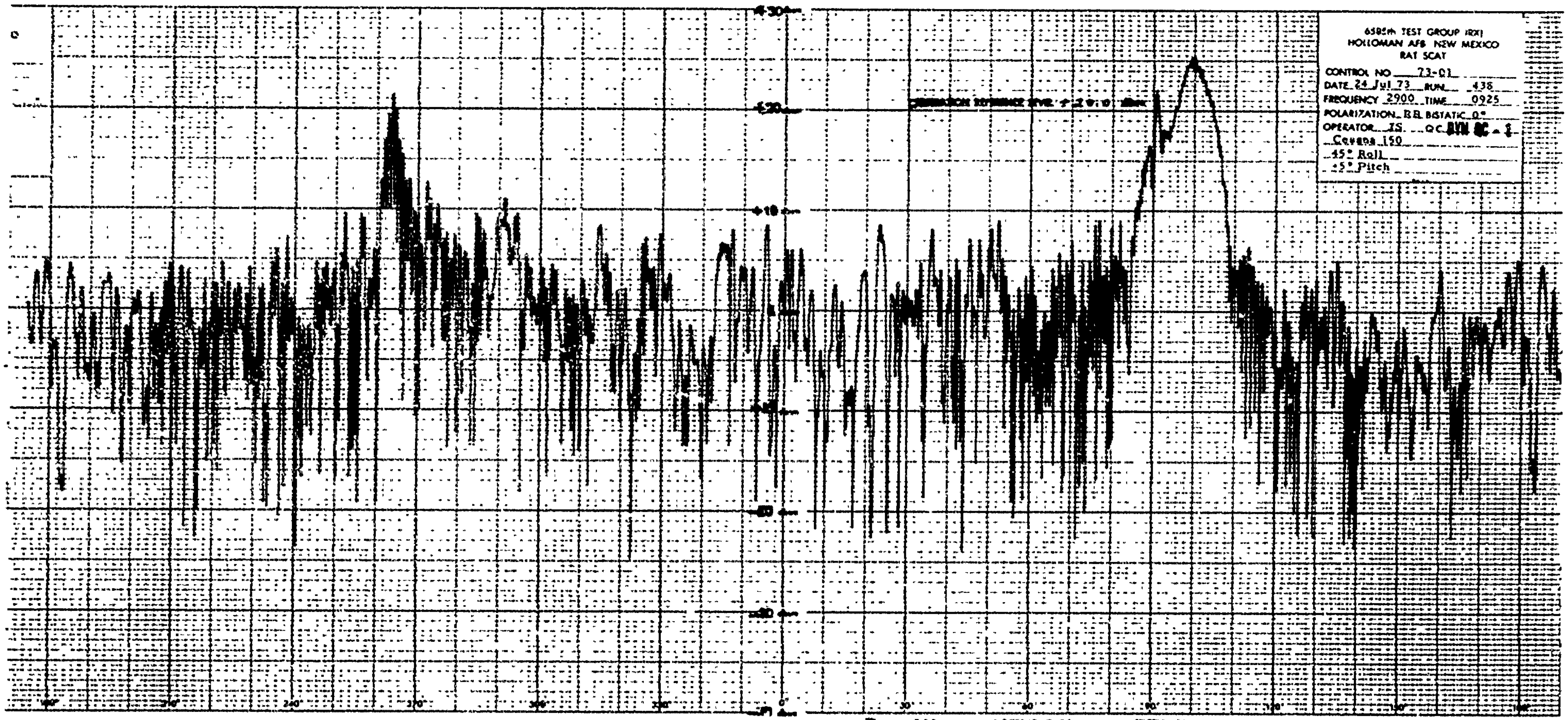

HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 20 Jul 73 RUN 370
FREQUENCY 2200 TIME 0820
POLARIZATION RR BISTATIC 0°
OPERATOR REN
Cessna 150
30° Roll
+10° Pitch

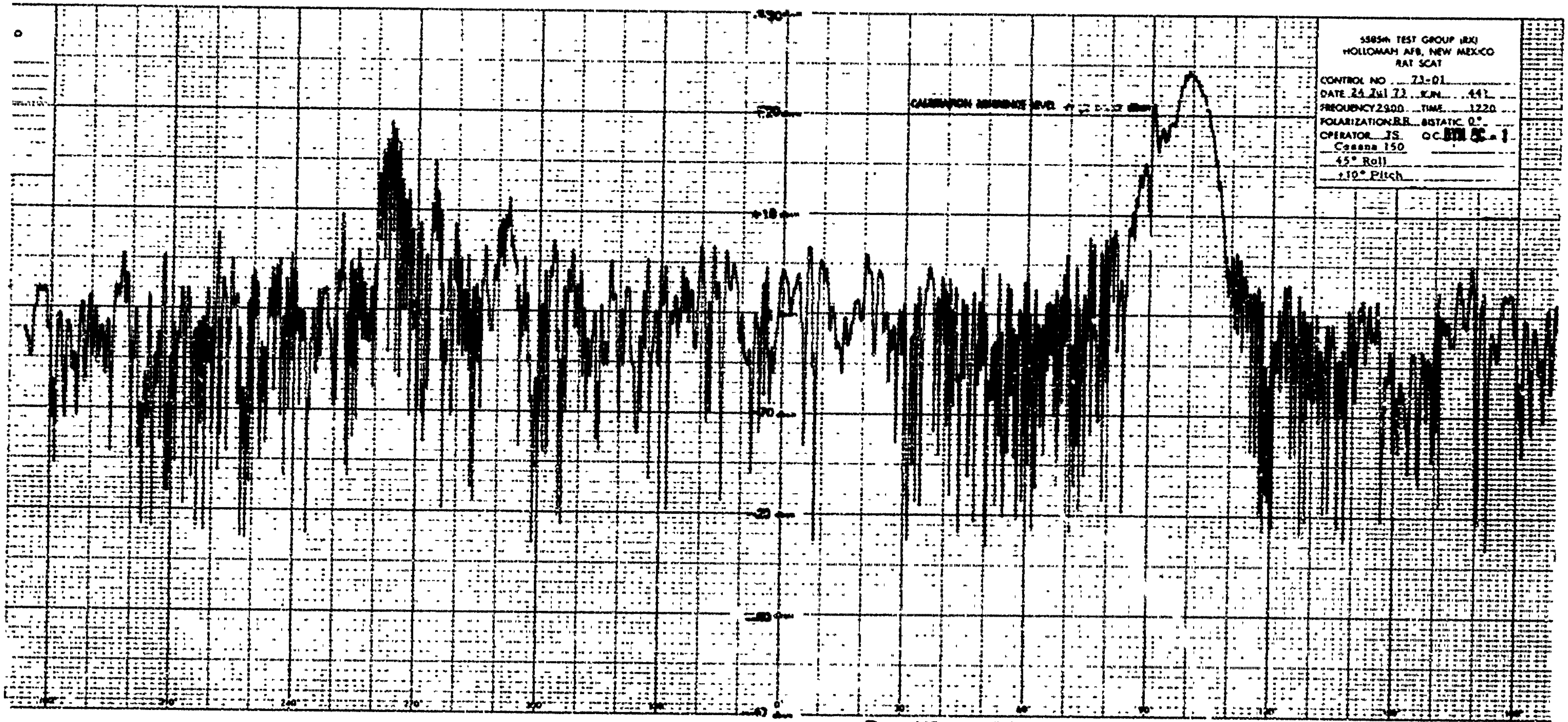

TEST GROUP
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO
FREQUENCY
POLARIZATION
OPERATOR
Cessna 150
45° Roll
-10° Pitch


HOLLOMAN AFB, NEW MEXICO
DATE 27 Jul 73
FREQUENCY 2300
Cessna 150

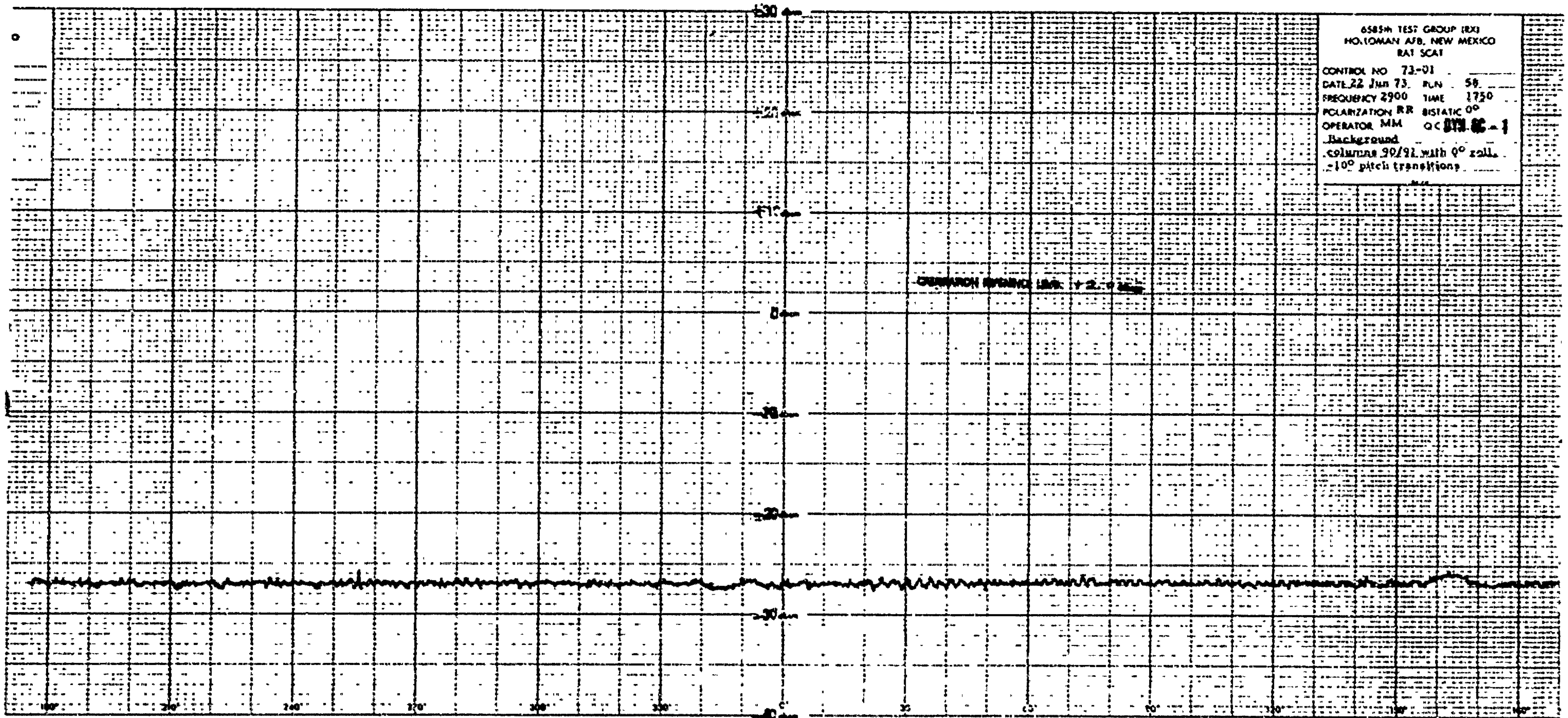


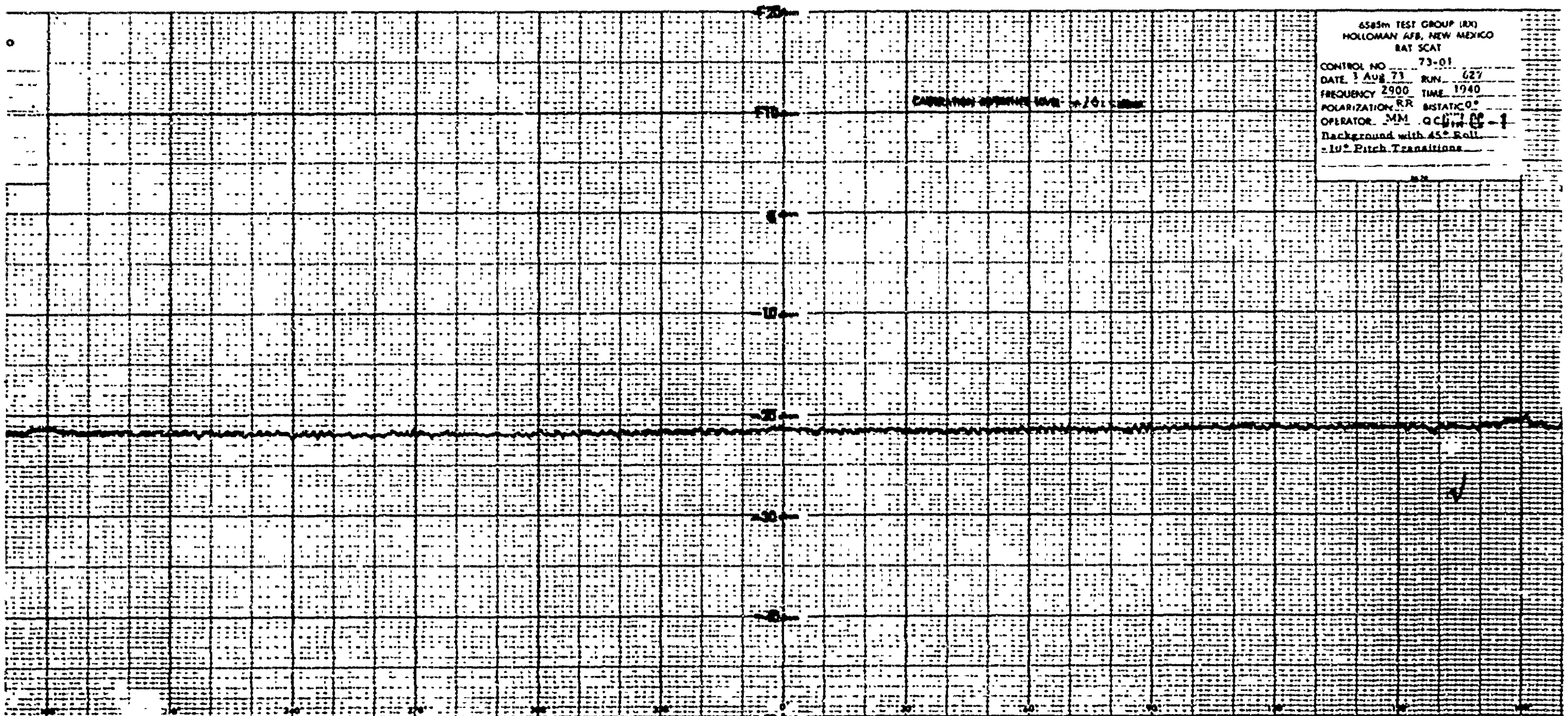
6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 23 Jul 73 RUN 413
FREQUENCY 2900 TIME 1305
POLARIZATION RR BISTATIC 0°
OPERATOR JS
Cessna 150
45° Roll
0° Pitch
CALIBRATION REFERENCE
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
30
60°
90°
120°
150°
180°

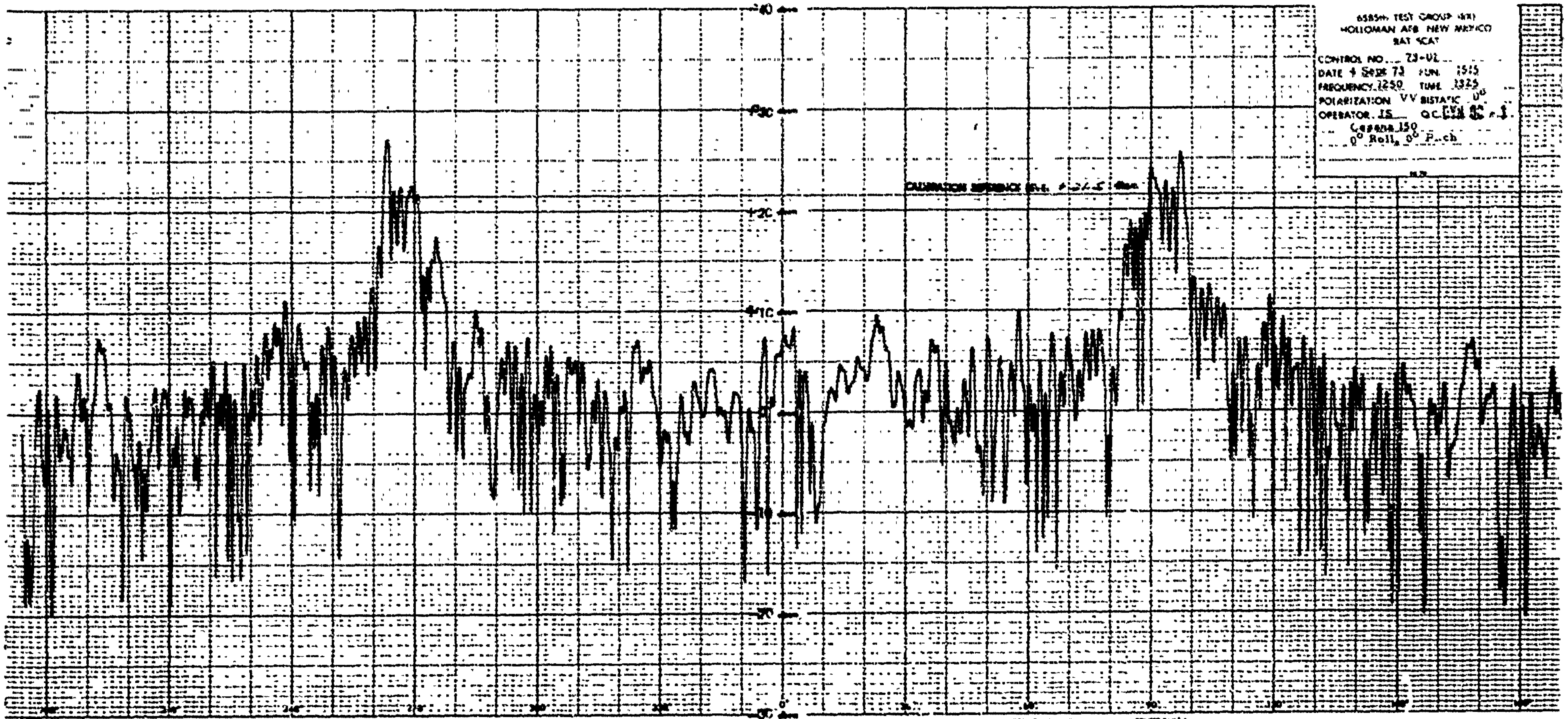

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 24 Jul 73 RUN 438
FREQUENCY 2900 TIME 0925
POLARIZATION RR BISTATIC 0°
OPERATOR TS
Cessna 150
45° Roll
15° Pitch
+30
+20
+10
-10
-20
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°



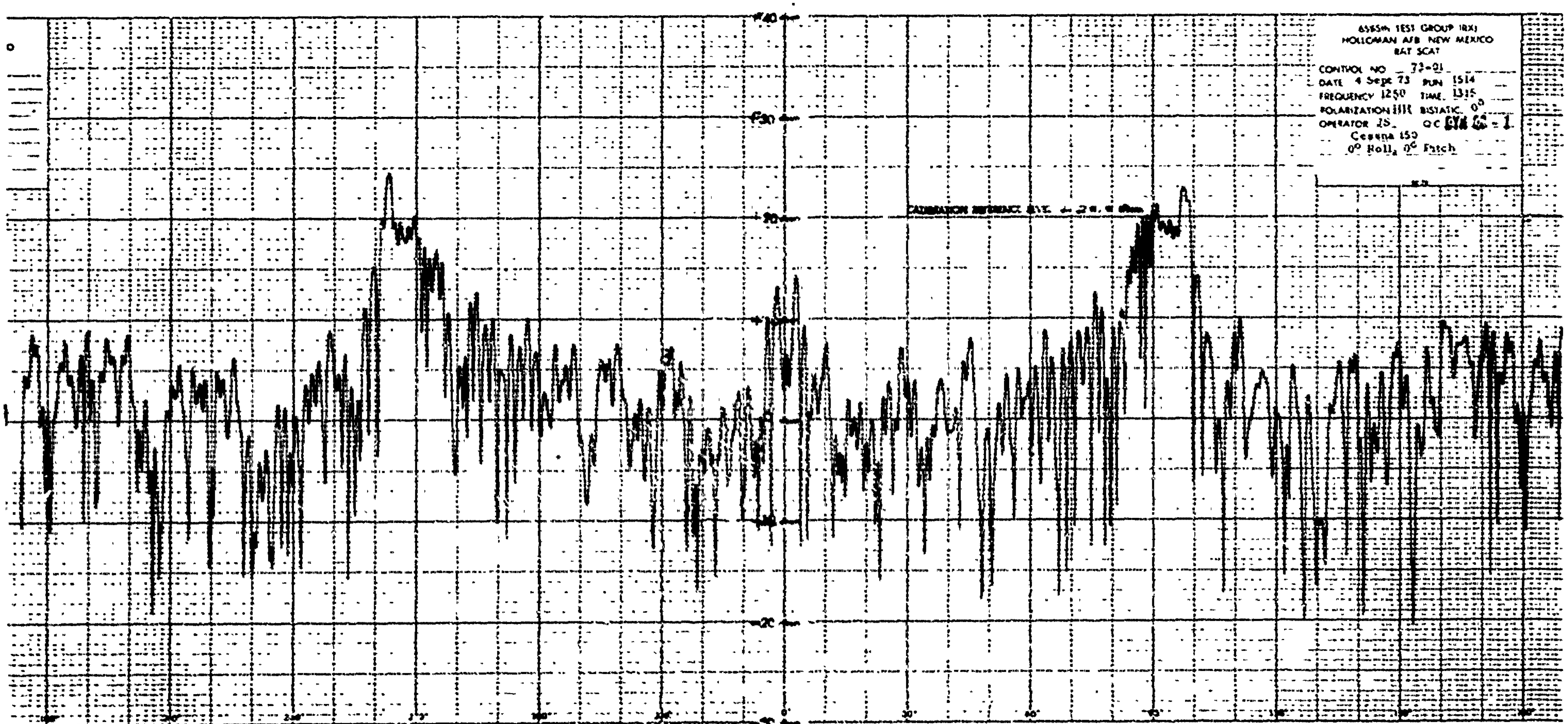
5585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 24 Jul 73 RUN 441
FREQUENCY 2900 TIME 1220
POLARIZATION B.B. BISTATIC 0°
OPERATOR JS. QC
Cessna 150
45° Roll
+10° Pitch
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

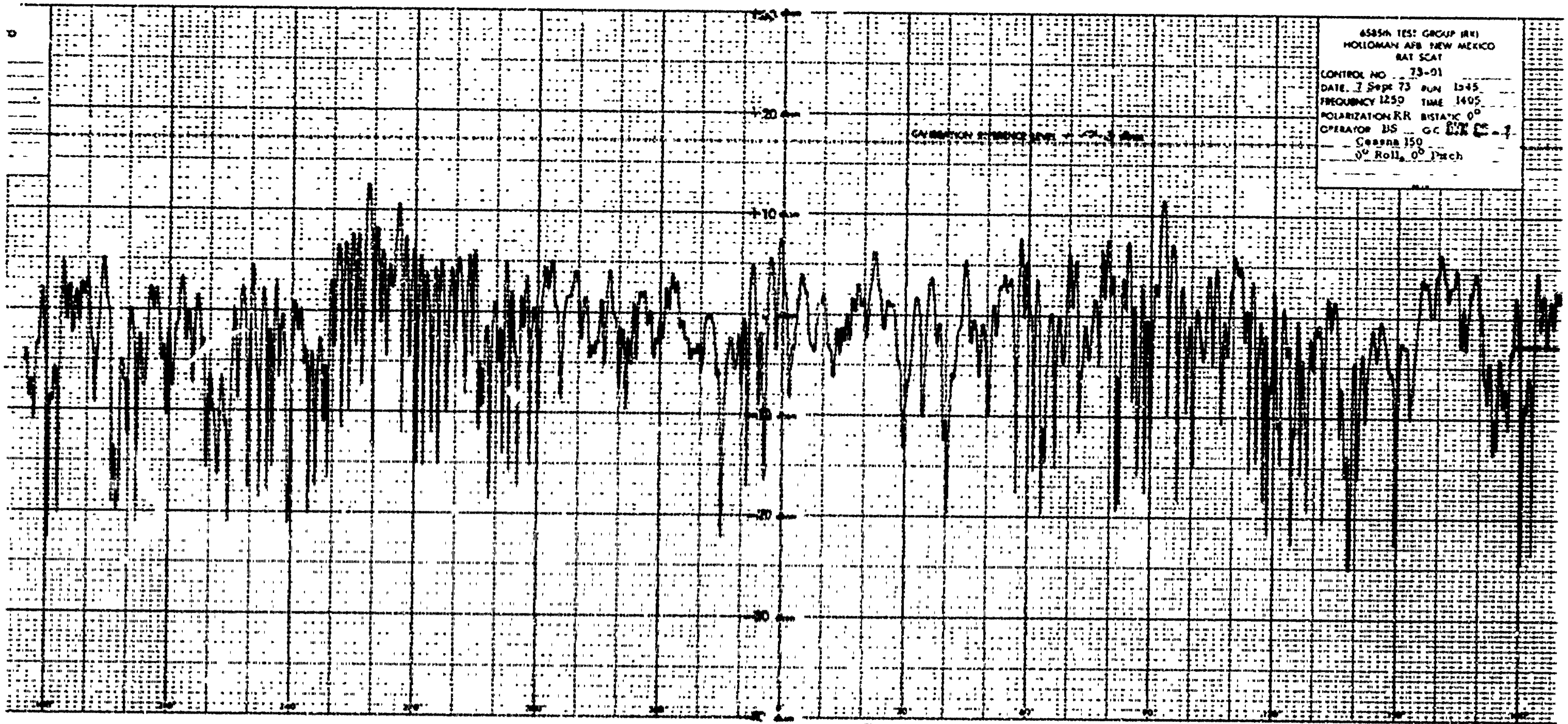

6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 22 Jun 73 RUN 58
FREQUENCY 2900 TIME 1750
POLARIZATION RR BISTATIC 0°
OPERATOR MM
Background
columns 90/92 with 0° roll,
±10° pitch transitions
30
20
10
0
-10
-20
-30
-40
180°
210°
240°
270°
300°
330°
0°
30
60°
90°
120°
150°
180°


6585th TEST GROUP (RX)
HOLLOMAN AFB, NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 3 Aug 73 RUN 627
FREQUENCY 2900 TIME 1940
POLARIZATION RR BISTATIC 0°
OPERATOR MM
Background with 45° Roll
-10° Pitch Transitions

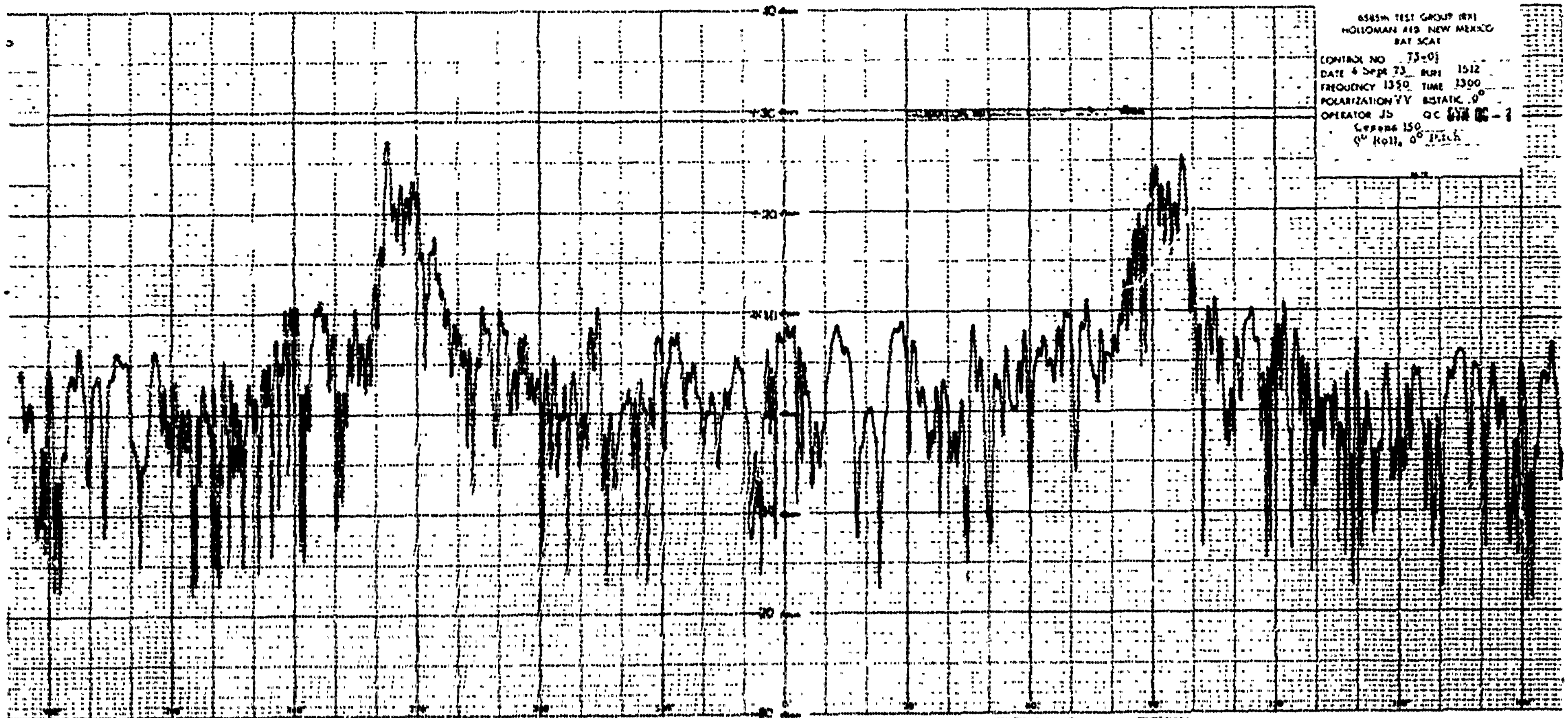


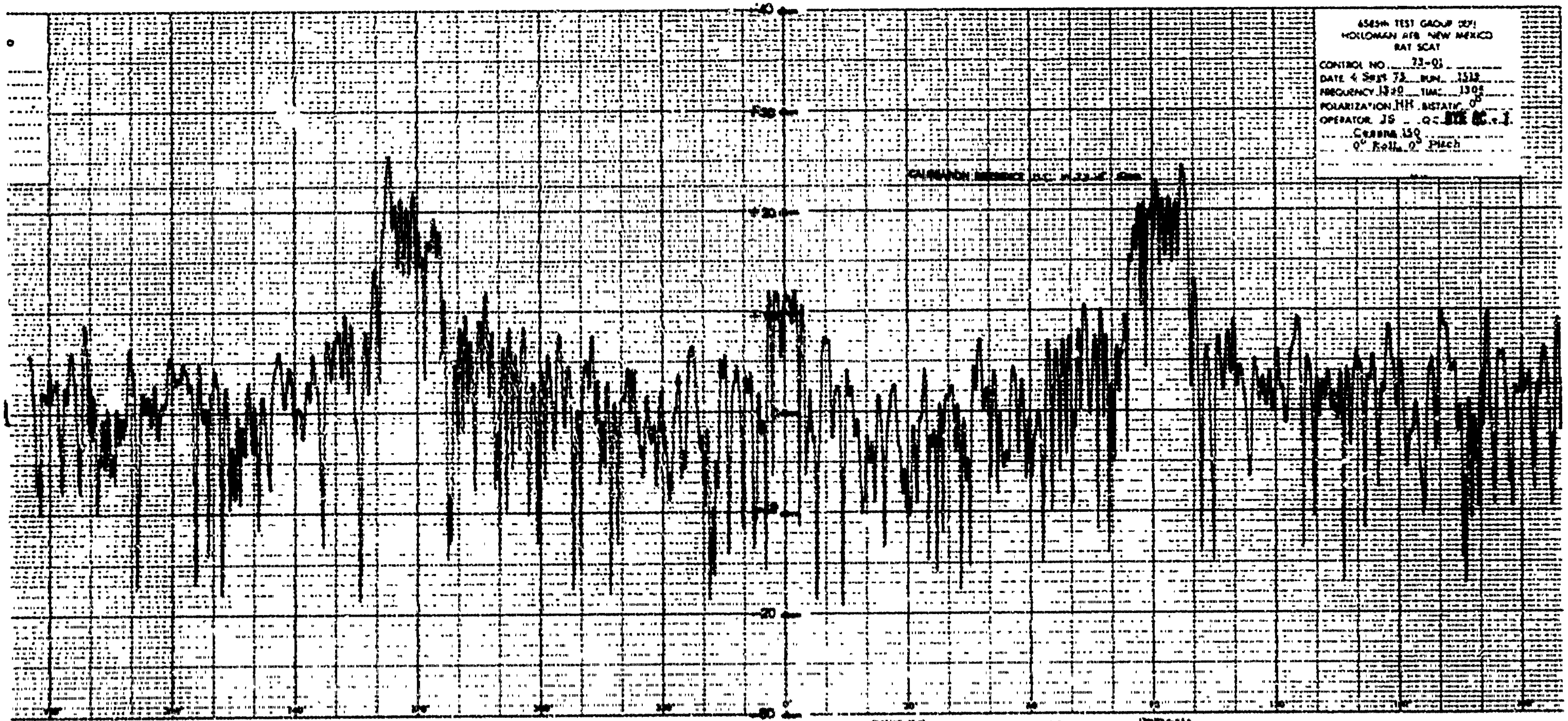
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO. 73-02
DATE 4 Sept 73 RUN 1515
FREQUENCY 1250 TIME 1325
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
0° Roll, 0° Pitch
CALIBRATION REFERENCE
+40 dbsm
+30 dbsm
+20 dbsm
+10 dbsm
0
-10
-20
-30 dbsm


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-21
DATE 4 Sept 73 RUN 1514
FREQUENCY 1250 TIME 1315
POLARIZATION HH BISTATIC 0°
OPERATOR JS QC
Cessna 150
0° Roll, 0° Pitch
CALIBRATION REFERENCE
+40
+30
+20
+10
0
-10
-20
-30
180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°

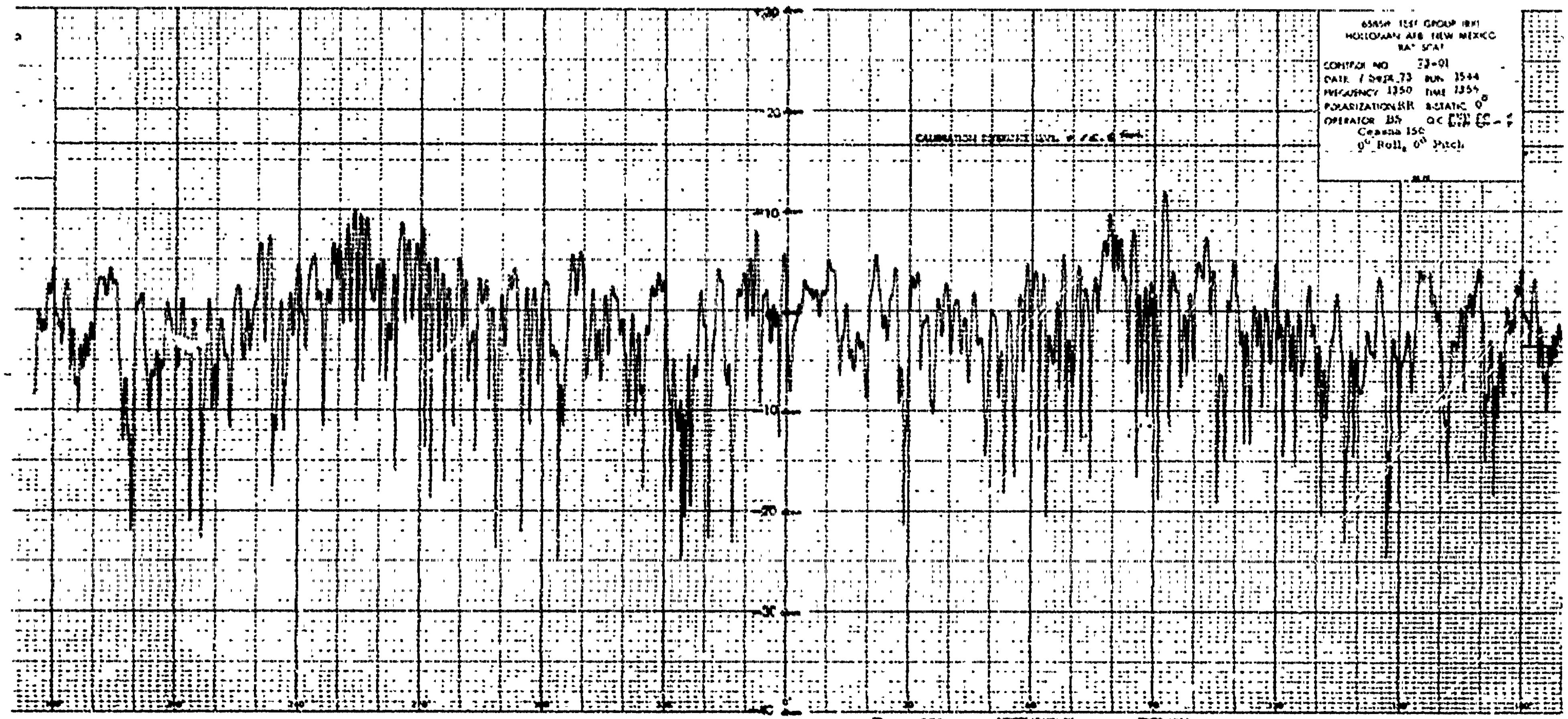


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 7 Sept 73 RUN 1545
FREQUENCY 1250 TIME 1405
POLARIZATION RR BISTATIC 0°
OPERATOR DS
Cessna 150
0° Roll, 0° Pitch
+20 dBm
+10 dBm
-10 dBm
-20 dBm
-30 dBm

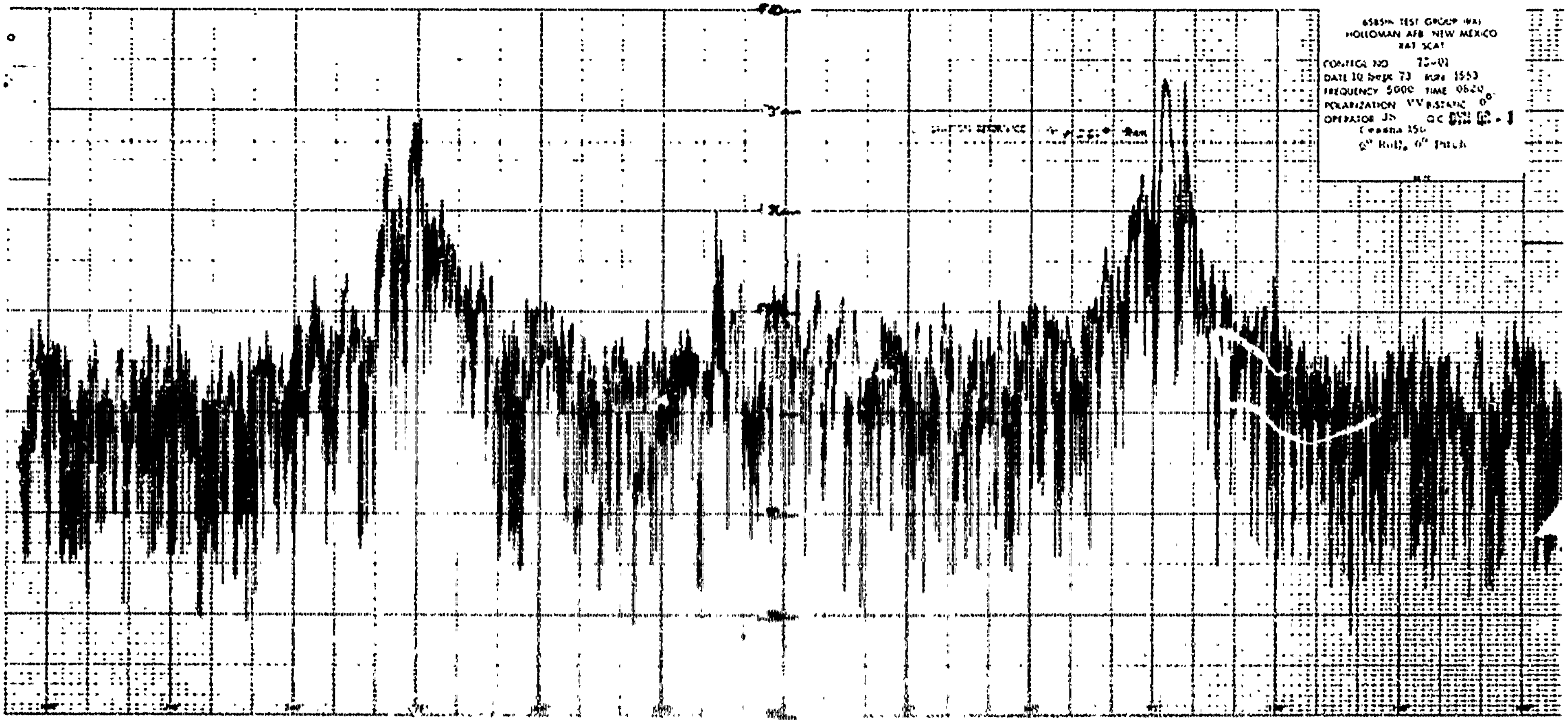

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-03
DATE 4 Sept 73 RUN 1512
FREQUENCY 1350 TIME 1300
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
0° Roll, 0° Pitch
40 dbsm
30 dbsm
20
10
0
-10
-20 dbsm
-30 dbsm

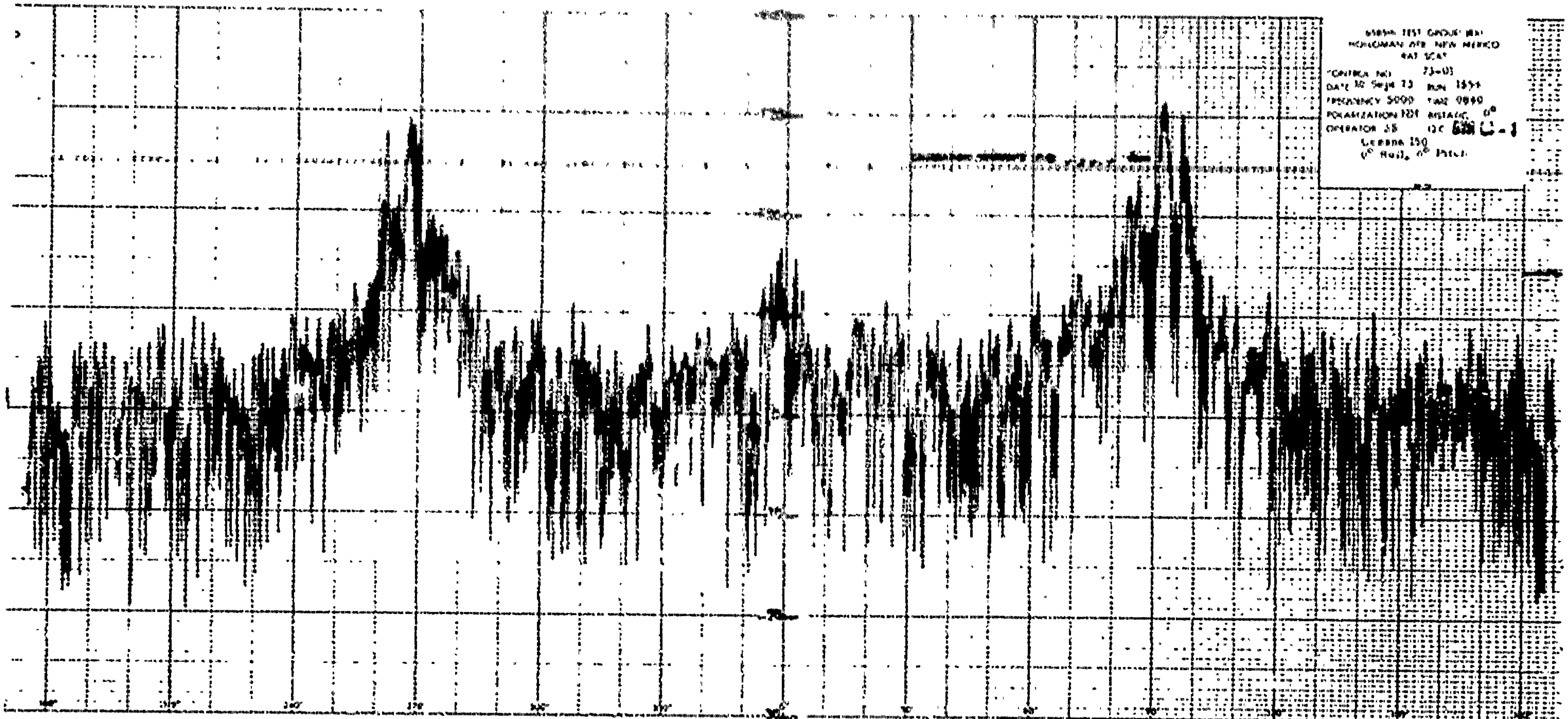


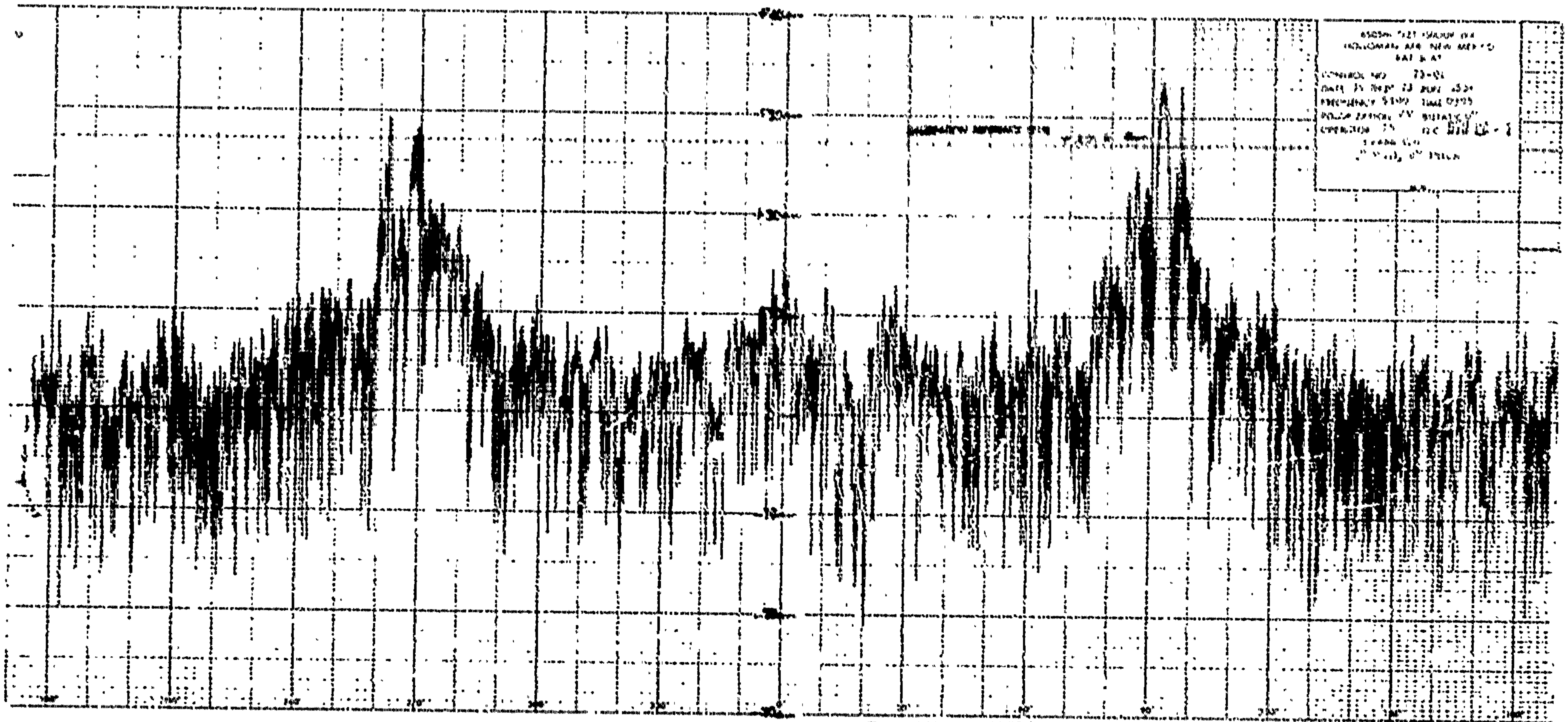
6585th TEST GROUP (XY)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 4 Sept 73 RUN 1512
FREQUENCY 1340 TIME 1305
POLARIZATION HH BISTATIC 0°
OPERATOR JS Q.C. [redacted]
Cessna 150
0° Roll, 0° Pitch

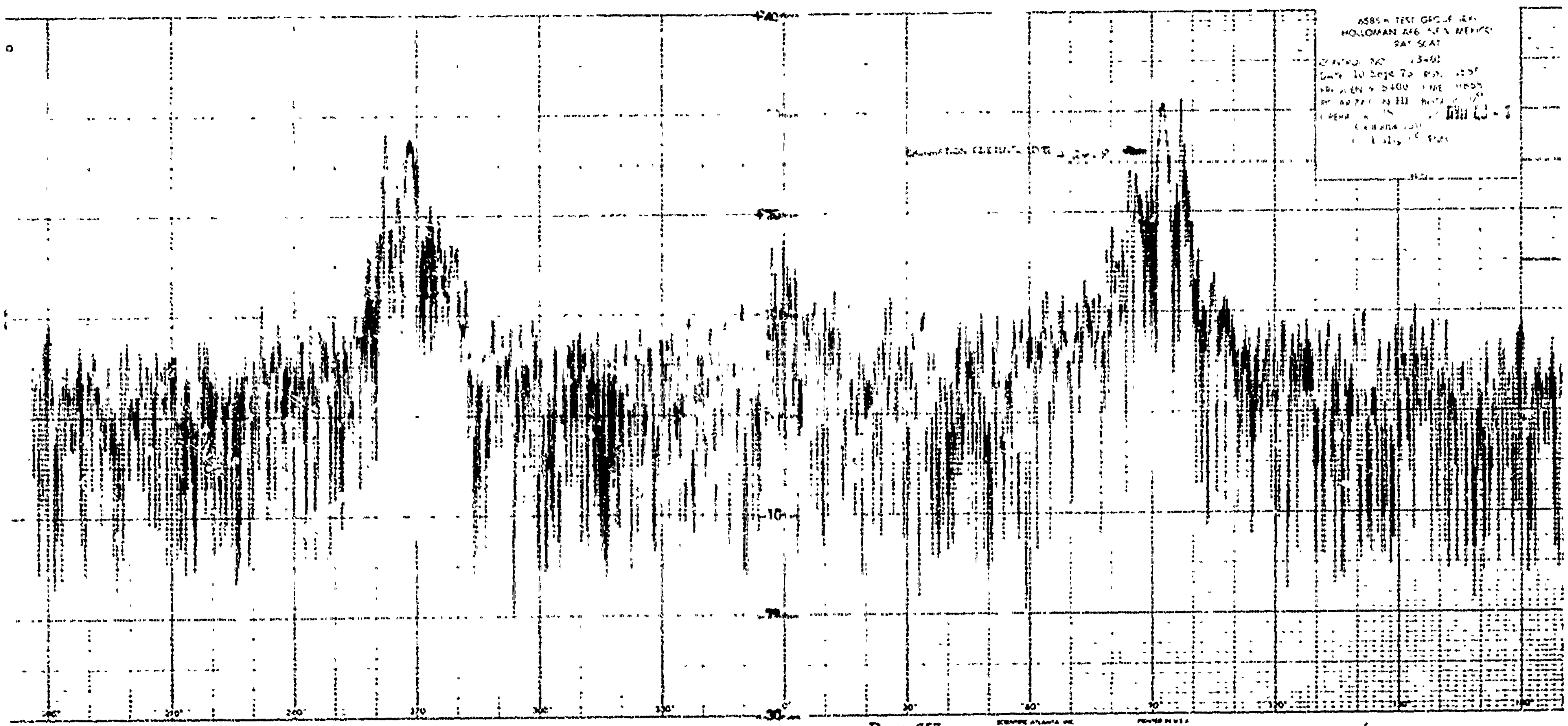


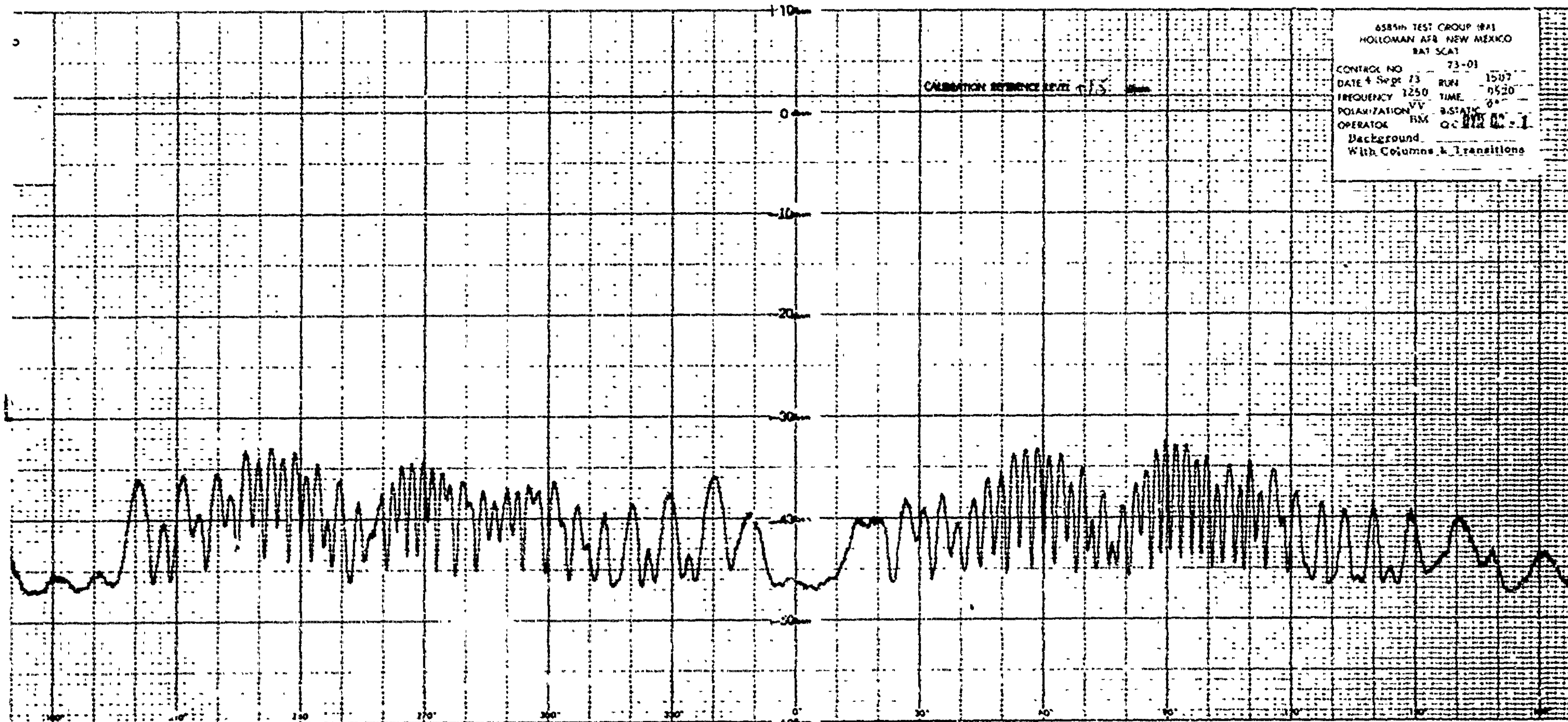
6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 7 Sept 73 RUN 3544
FREQUENCY 1350 TIME 1355
POLARIZATION RR STATIC 0°
OPERATOR BS
Cessna 150
0° Roll, 0° Pitch
+30
20
10
0
10
20
30
40

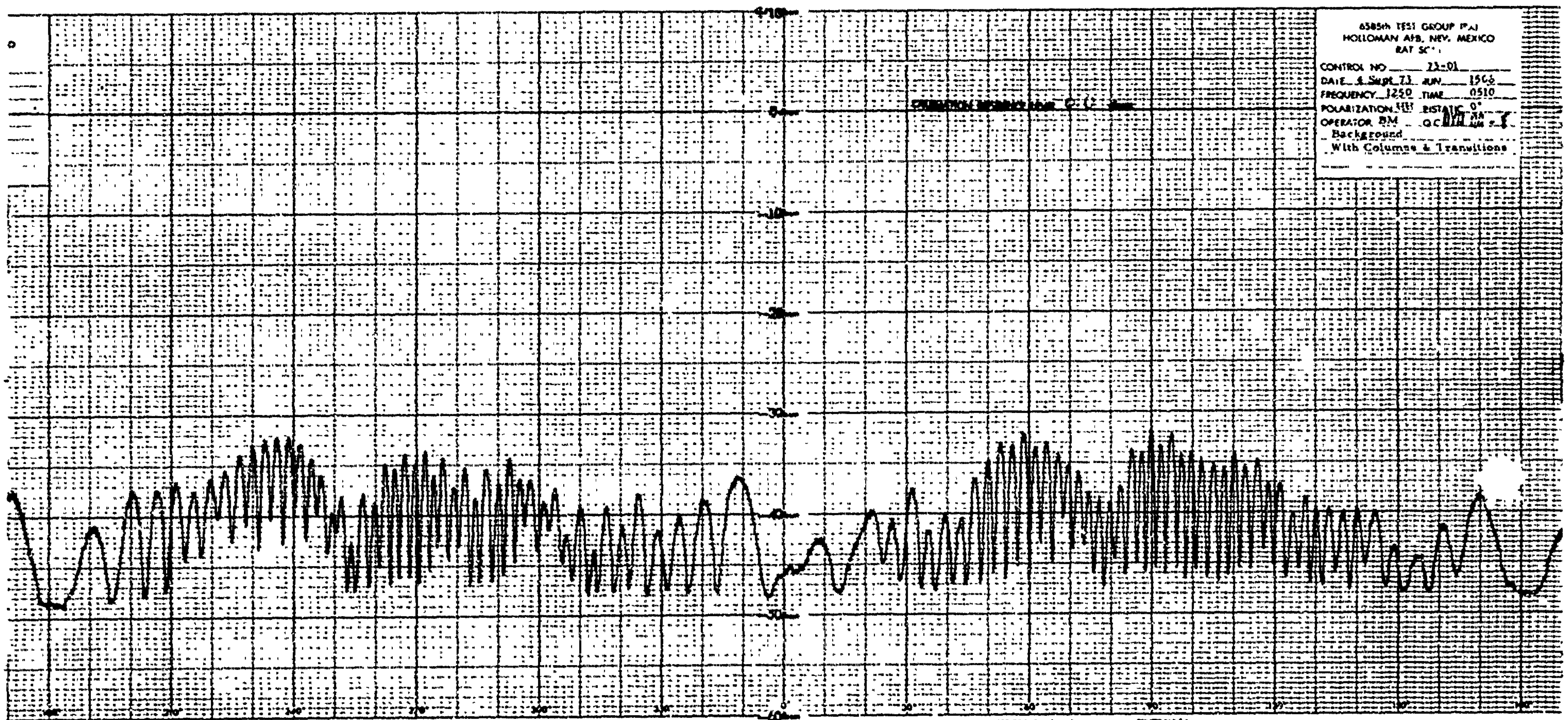

6585th TEST GROUP (RA)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 10 Sept 73 RUN 1553
FREQUENCY 5000 TIME 0620
POLARIZATION VV BISTATIC 0°
OPERATOR JS
Cessna 150
0° Roll, 0° Pitch

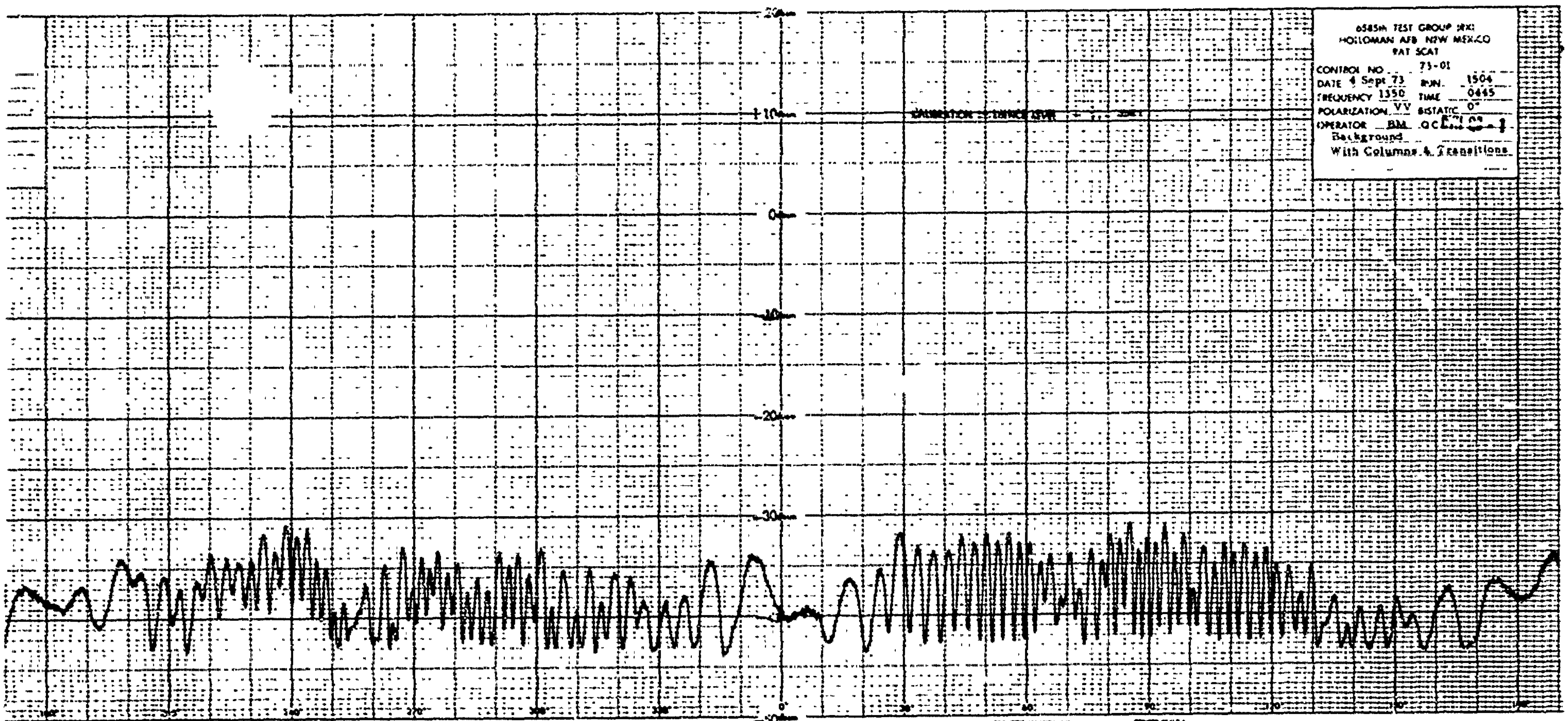

HOLLOMAN AFB NEW MEXICO
RAT SCAT
FREQUENCY 5000
Cessna 150
0° Roll, 0° Pitch
270°
0°
90°

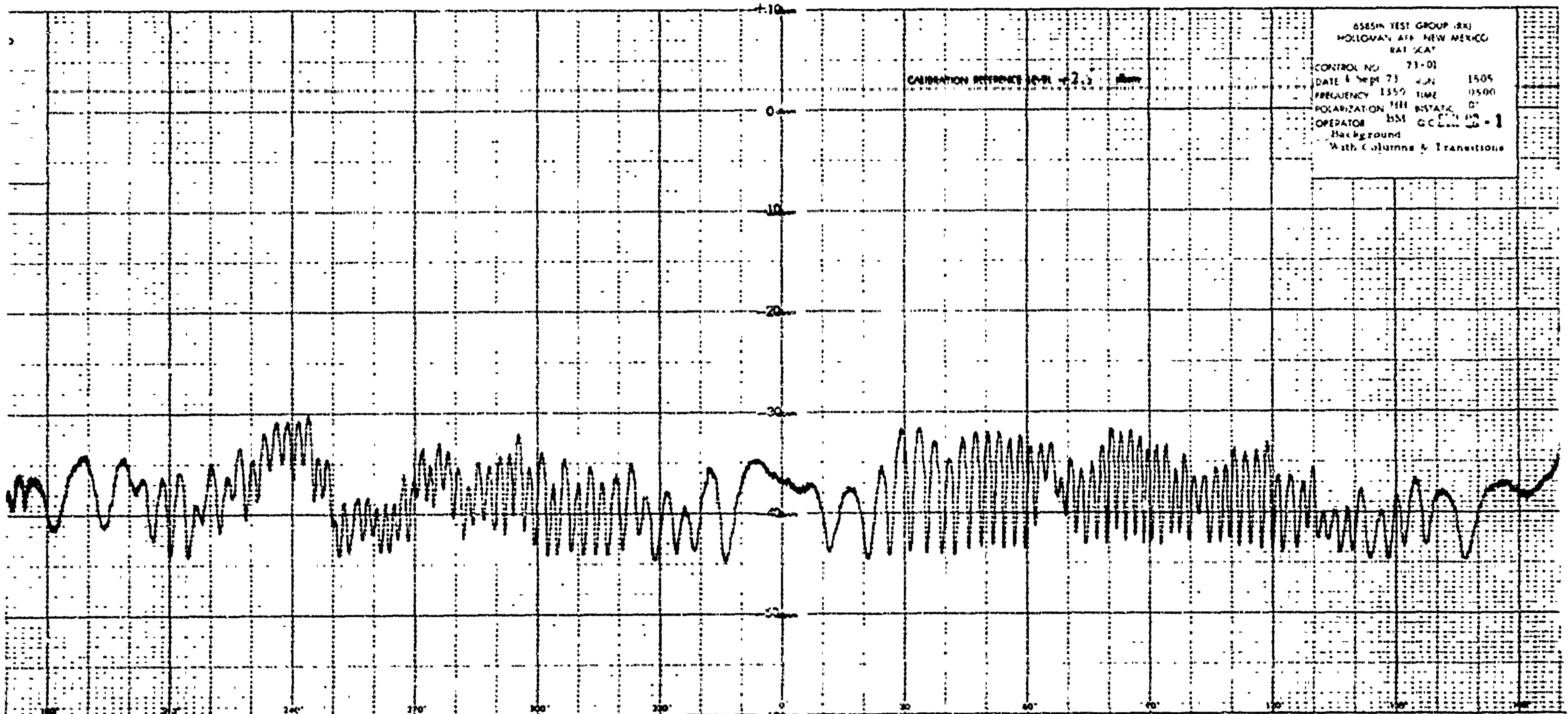


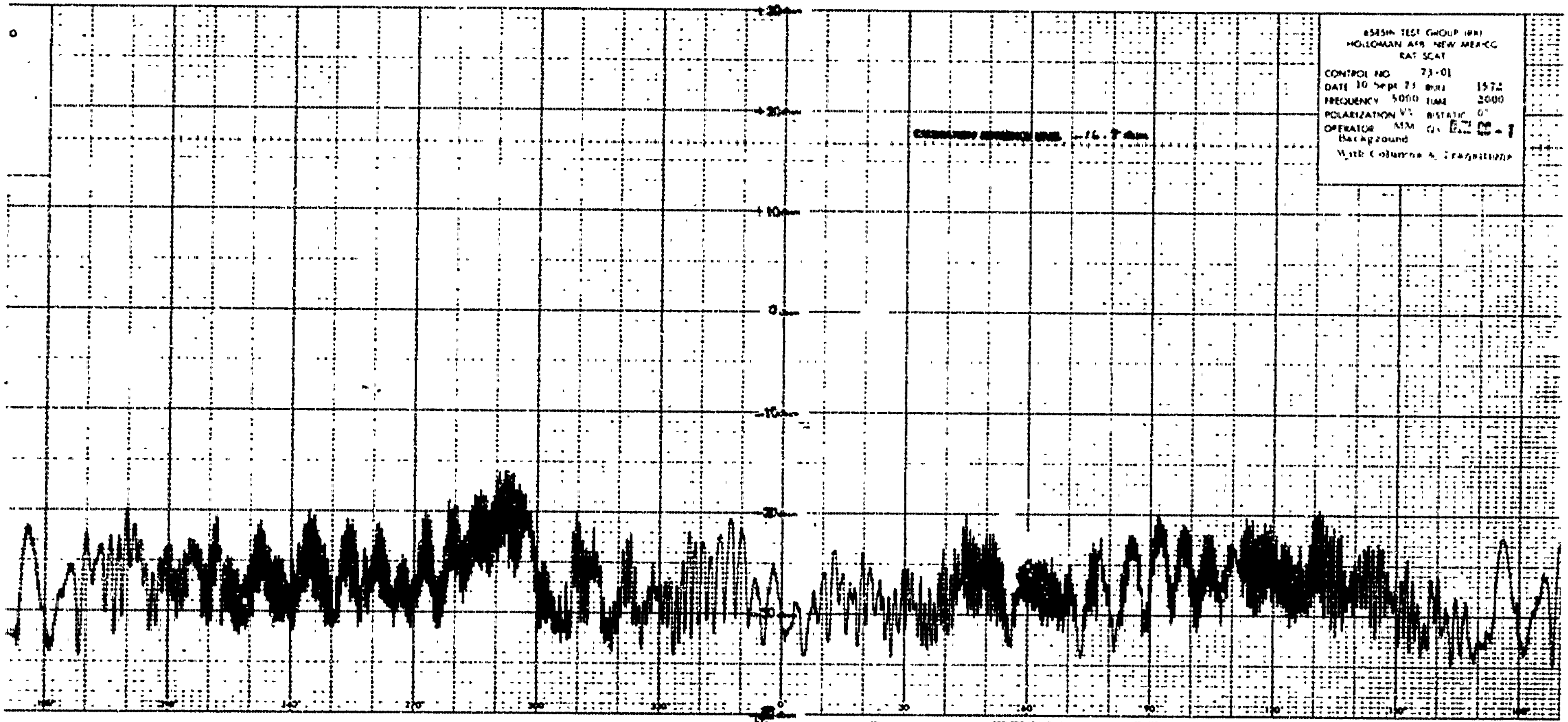


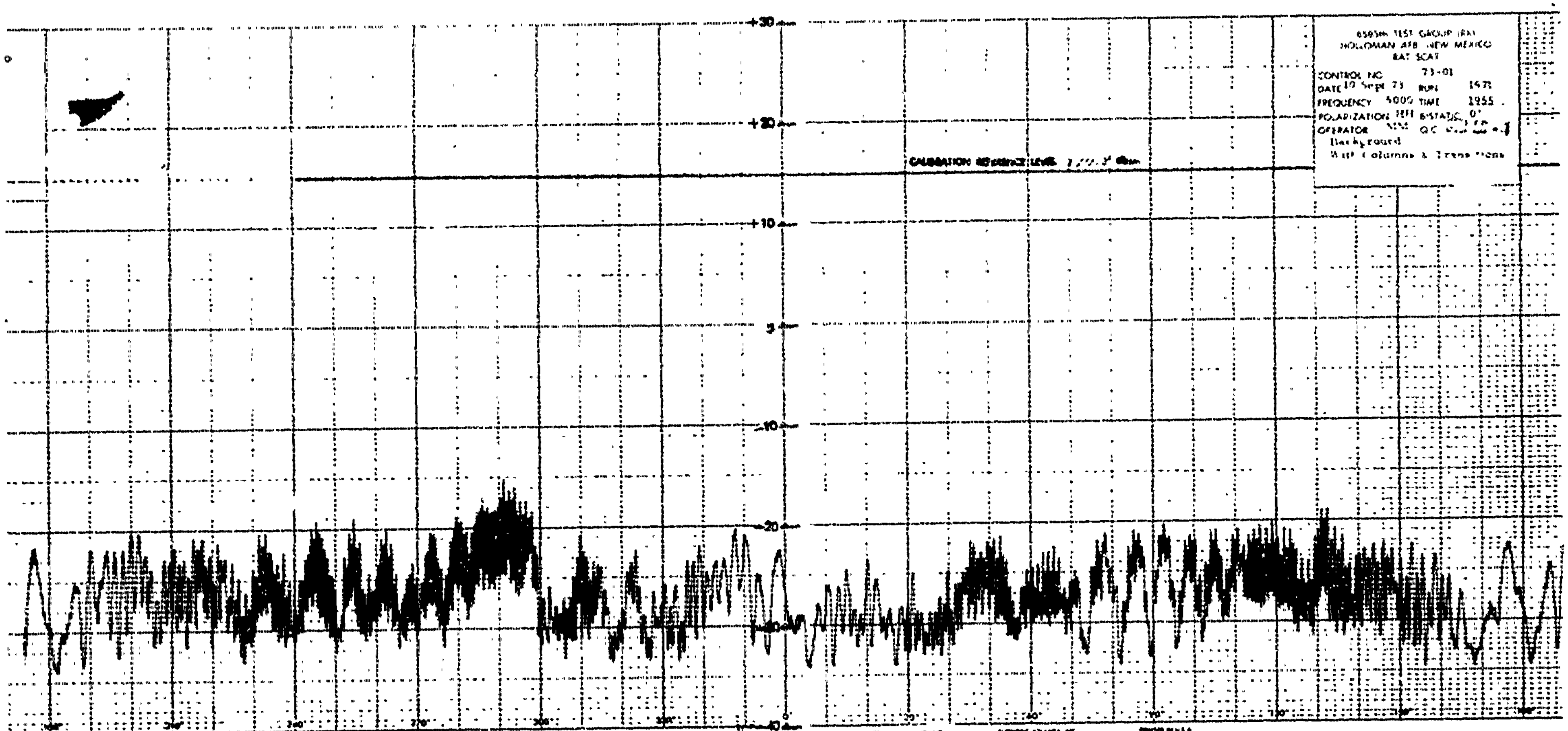

6585th TEST GROUP (RA)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 4 Sept 73 RUN 1507
FREQUENCY 1250 TIME 0520
POLARIZATION VV BISTATIC 0°
OPERATOR BM QC
Background
With Columns & Transitions
CALIBRATION REFERENCE LEVEL
+10
0
-10
-20
-30
-40
-50
-60
0°
30°
270°
300°

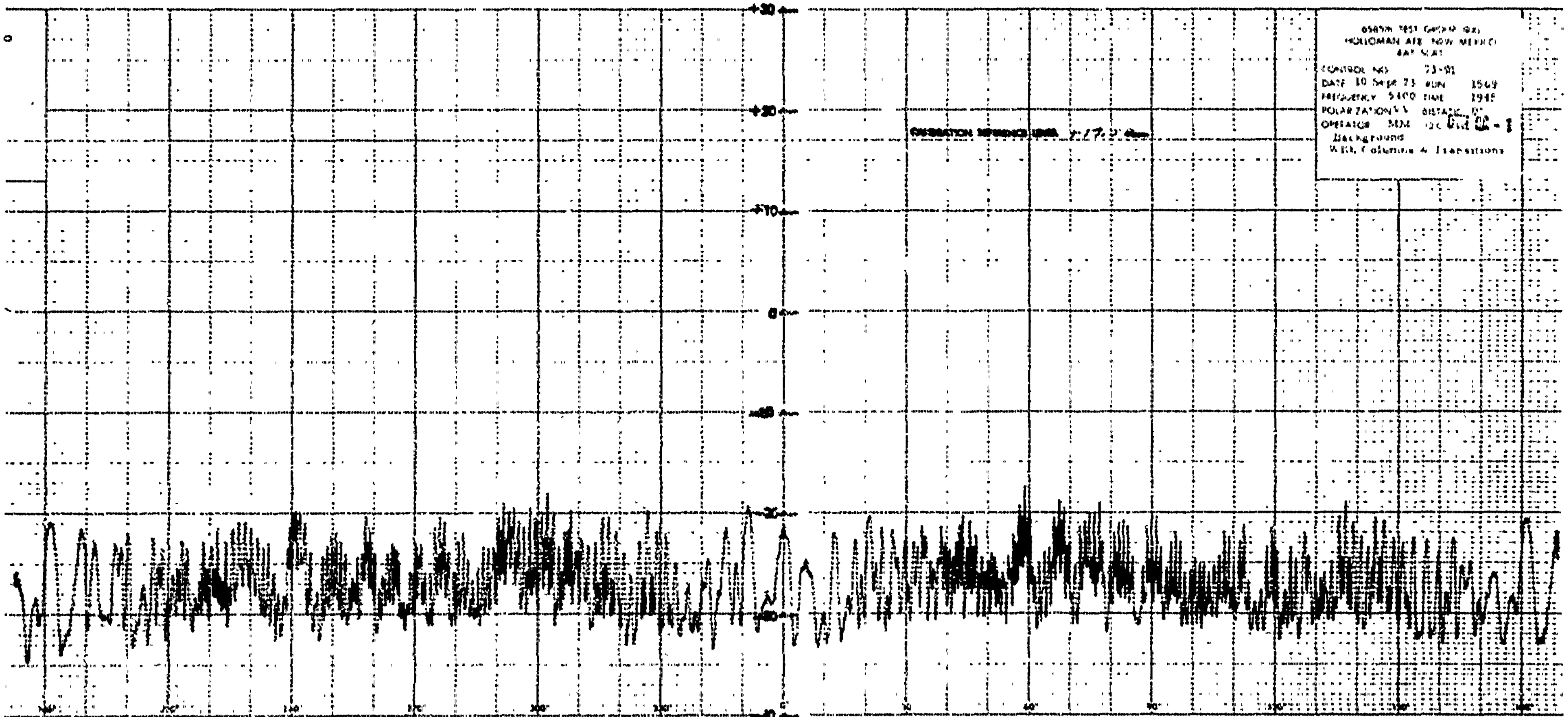

6585th TEST GROUP (TA)
HOLLOMAN AFB, NEW MEXICO
RAT SC
CONTROL NO 23-01
DATE 4 Sept 73 RUN 1566
FREQUENCY 1250 TIME 0510
POLARIZATION HH BISTATIC 0°
OPERATOR BM
Background
With Columns & Transitions


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO. 73-01
DATE 4 Sept 73 RUN 1504
FREQUENCY 1350 TIME 0445
POLARIZATION VV BISTATIC 0°
OPERATOR BM QC
Background
With Columns & Transitions
+10
0
-10
-20
-30
-50
0°
30°
60°
90°
270°
300°
330°

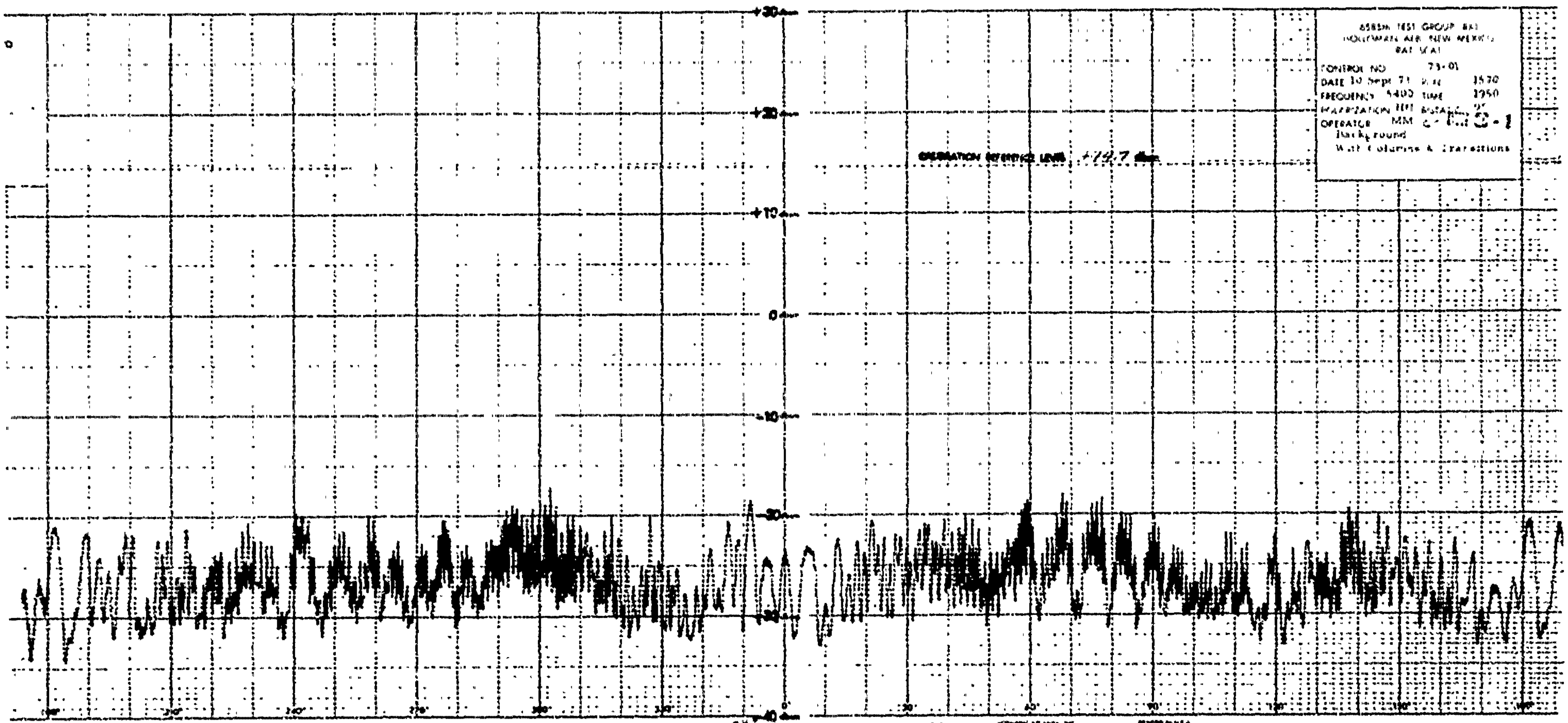

6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 4 Sept 73
1505
FREQUENCY 1550 TIME 0500
POLARIZATION HH BISTATIC 0°
OPERATOR BM
Background
With Columns & Transitions
CALIBRATION REFERENCE LEVEL +2.5 dbm
+10
0
-10
-20
-30
-40
-50
-60
0°
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 10 Sept 73 RUN 1574
FREQUENCY 5000 TIME 2000
POLARIZATION VV BISTATIC 0°
OPERATOR MM
Background
With Columns & Transitions
+30
+20
+10
0
-10
-20
-30


6585th TEST GROUP (RX)
HOLLOMAN AFB NEW MEXICO
RAT SCAT
CONTROL NO 73-01
DATE 10 Sept 73 RUN 1471
FREQUENCY 5000 TIME 1955
POLARIZATION HH BISTATIC 0°
OPERATOR
Background
With Columns & Transitions
CALIBRATION REFERENCE LEVEL
+30
+20
+10
0
-10
-20
-40



HOLLOMAN AFB NEW MEXICO
CONTROL NO 73-91
DATE 10 Sept 73 RUN 1569
FREQUENCY 5400 TIME 1945
POLARIZATION VV BISTATIC 0°
OPERATOR MM
Background
+30 dbm
+20 dbm
+10 dbm
0 dbm
-10 dbm
-20 dbm
-30 dbm
-40 dbm


CONTROL NO 73-01
DATE 10 Sept 73
FREQUENCY 5400 TIME 1950
OPERATOR MM
Background
+30 dbm
+20 dbm
+10 dbm
0 dbm
-10 dbm
-20 dbm
-30 dbm
-40 dbm
OBSERVATION REFERENCE LEVEL +14.7 dbm

APPENDIX A
SITE INTRODUCTION

1. GENERAL

RAT SCAT is a static ground plane radar cross section measurement site, located on Alkali Flats near Holloman Air Force Base, New Mexico. It is authorized by the DOD for use by governmental agencies. It is under the auspices of the 6585th Test Group, Air Force Special Weapons Center, Kirtland Air Force Base, New Mexico.

A ground plane range utilizes radar energy reflected from the earth as well as radar energy traveling directly to the target through the atmosphere. When the antennas and target are adjusted to proper heights, coherent phase addition of these electromagnetic waves into a flat wave front, enhances the system sensitivity. Radar returns from jects near the earth's surface are reduced thus suppressing target area interference. Target area interference is reduced further through the use of special polyfoam support columns, radar absorptive materials (RAM), and rotators located below the earth's surface (in pits).

Pulsed transmitters are employed to enable utilization of the range gated receiving system, which can selectively measure radar returns from the target area or the range displaced transfer standard. Background interference outside the target range is eliminated by range gating. Operation without background cancellation is therefore practical.

2. CAPABILITIES

The RAT SCAT electronic equipment and controls are housed in a permanent building. Three separate range lengths (458 feet, 1158 feet, and 2458 feet) are provided for range variation as shown in Figure A-1. This allows the use of convenient antenna and target heights while satisfying the far field criterion for most targets. (Special 40-foot antenna towers are attached to the building for antenna height positioning.) Further versatility is provided by two mobile equipment vans, one for monostatic range length variation and one for bistatic measurements. A duplicate set of control and data consoles in the main building enables simultaneous operation of any two of the three ranges. A summary of the RAT SCAT characteristics is contained in Table A-1.

3. CALIBRATION

The normal method of calibration at RAT SCAT is to mount a primary standard (precision sphere) scatterer with a known radar cross section and record the corresponding signal level. Then the return from another secondary standard (corner or Luneberg lens) scatterer

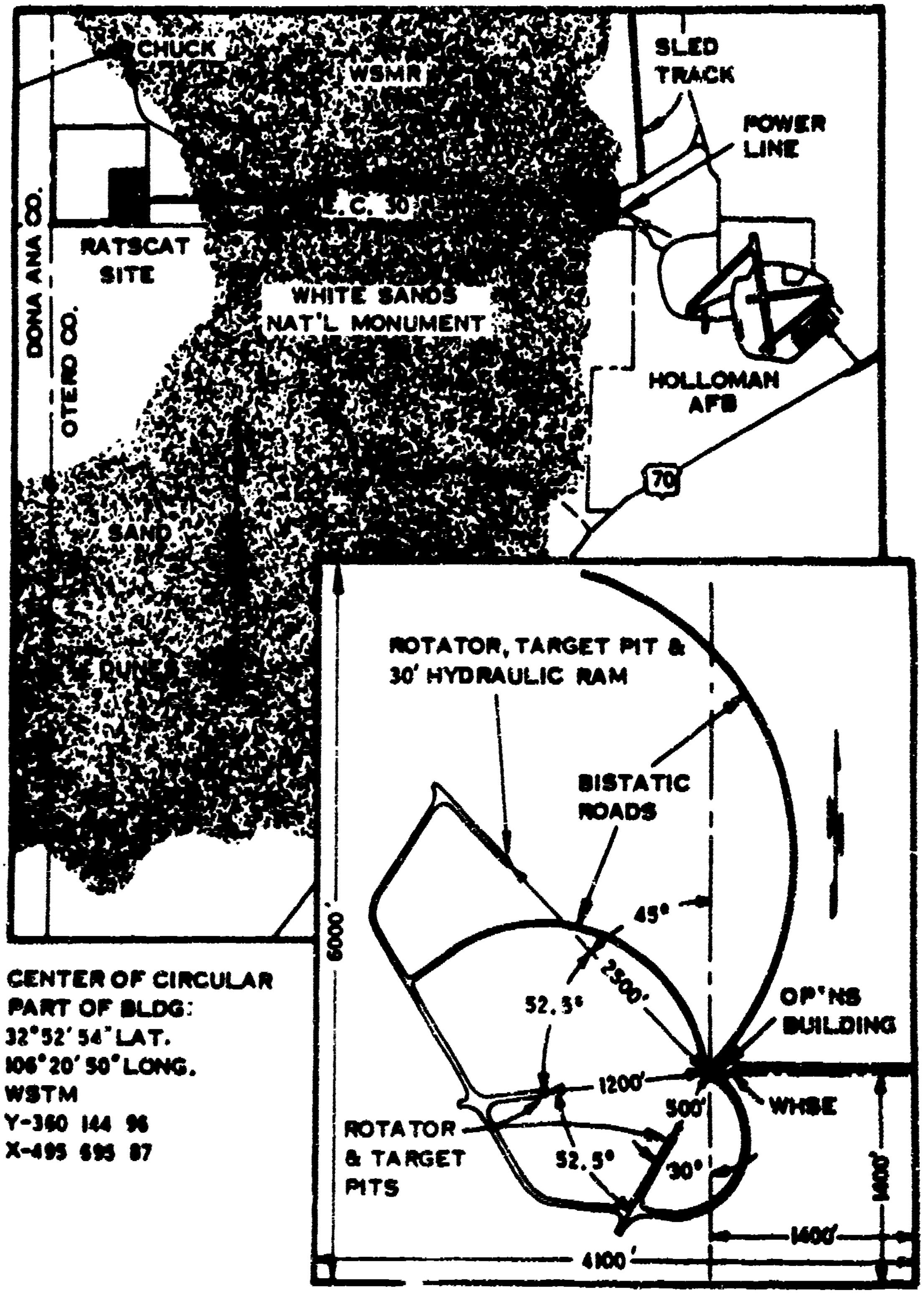


Figure A-1 MAP OF RAT SCAT SITE

TABLE A-1

RAT SCAT CHARACTERISTICS OF ELECTRONIC EQUIPMENT

Power Output	1 KW nominal bands 1 through 8, 25 KW nominal Ku, Ka bands
Pulse Width	0.1 to 1.0 microsecond
Pulse Repetition Frequency	500 to 5000 pps
No. of Receiving Systems	Two per band, (one monostatic and one bistatic)
Receiver Minimum Detectable Signal	-94 dbm nominal
Receiver Bandwidth	2 or 10 Mhz (selectable)
Range Gate Width	0.1 to 1.0 microsecond (50 to 500 feet)
Dynamic Range	70 db
Linearity	±0.5 db
Equipment Stability	0.1 db/hour (Average)
Analog Data Format	Polar and rectangular plots of cross section, glint and phase vs aspect angle
Digital Data Format	7 or 9 track magnetic (see Appendix C)
Antennas	1, 2, 3, 4, 6, 10, and 16 foot parabolic dishes (smaller and larger dishes available for special tests)
Antenna Feeds	Linear and circular horns with VSWR less than 2.0 to 1.0
Polarization	Horizontal, vertical, circular, elliptical in any transmitting and receiving configuration.
Background Level	As low as -80 dbsm (frequency dependent)
Background Reduction	Tuned columns and vector subtraction by using phase and amplitude measurements to reduce background by 20 db
Phase Measurement	Unique RAT SCAT capability for vector subtraction or scattering matrix applications
Azimuth Resolution	0.1 or 0.01 degree as applicable
Maximum Target Weight	40,000 pounds
Target Size	Greater than 60-foot length
Bistatic Capability	Primary ranges of 458, 1158, and 2458 feet for 0 to 160 degree bistatic angle
Frequency Coverage	100 to 18,000 MHz continuous, Ku, Ka bands and 95 GHz

Band 1 - 100 to 250 MHz
Band 2 - 250 to 500 MHz
Band 3 - 500 to 1000 MHz
Band 4 - 1000 to 2000 MHz
Band 5 - 2000 to 4000 MHz
Band 6 - 4000 to 8000 MHz
Band 7 - 8000 to 12,000 MHz
Band 8 - 12,000 to 16,000 MHz
Ku, Ka bands;
95 GHz

Range Length 300 feet minimum

Building/Pit 1 - 458 ft
Building/Pit 2 - 1158 ft
Building/Pit 3 - 2458 ft
Monostatic Van/Pits 1, 2, or 3 - variable range length

displaced in range is recorded as a transfer standard. Both the precision standard return and the transfer standard return are recorded on the same plot. Thereafter, radar cross section calibration is determined by referencing the transfer standard return for every run. Thus every run is recalibrated. The comparisons of primary and transfer standards accomplished before and after each measurement series are identified respectively as calibration and post-calibration. If the direct ratio of primary to secondary readings is not maintained before and after the measurement series, then all runs between are invalid and must be repeated.

The calibration reference level marked on each data plot is related to the transfer standard level. This reference level may under controlled conditions differ from the actual transfer standard signal level since precision calibrated attenuation is sometimes inserted in the receiver line. When such attenuation is inserted, returns from the transfer standard are reduced to a level compatible with the scale used for the target measurements. The 70 db dynamic range of the plot is placed to include the range of returns expected from the vehicle being measured. In some cases two runs are necessary to be plotted for direct overlay to include the dynamic range of the vehicle if it exceeds 70 db. Calibration plots are included with the target data when requested by the user.

The sphere calibration plots will not necessarily be straight lines. If the background return is within 20 db of the sphere return, for example, a variation in sphere return of approximately $\pm$1db can result. For calibration the sphere is intentionally placed at least 1/2 wavelength off the center of table rotation to insure sufficient phasing with the background return. The average sphere return is then chosen for a calibration level. This avoids the peak errors involved with coherent addition of sphere return and background return and allows the minimum errors involved with non-coherent addition of the returns. This is indicated in Figure A-2.

4. OPERATING PROCEDURES

The following step-by-step procedure is standard in obtaining monostatic radar cross section measurements after frequency, feeds, antennas, antenna height, target height, and pit (range length) have been chosen:

. Calibration - As described in previous section.

2. Horizontal and vertical probes (field strength measurements at the target area) - Horizontal probes at the target area have been shown to be redundant for azimuthal boresighting. For this reason, these probes are taken only upon request for examination of near field effects.

UNCLASSIFIED

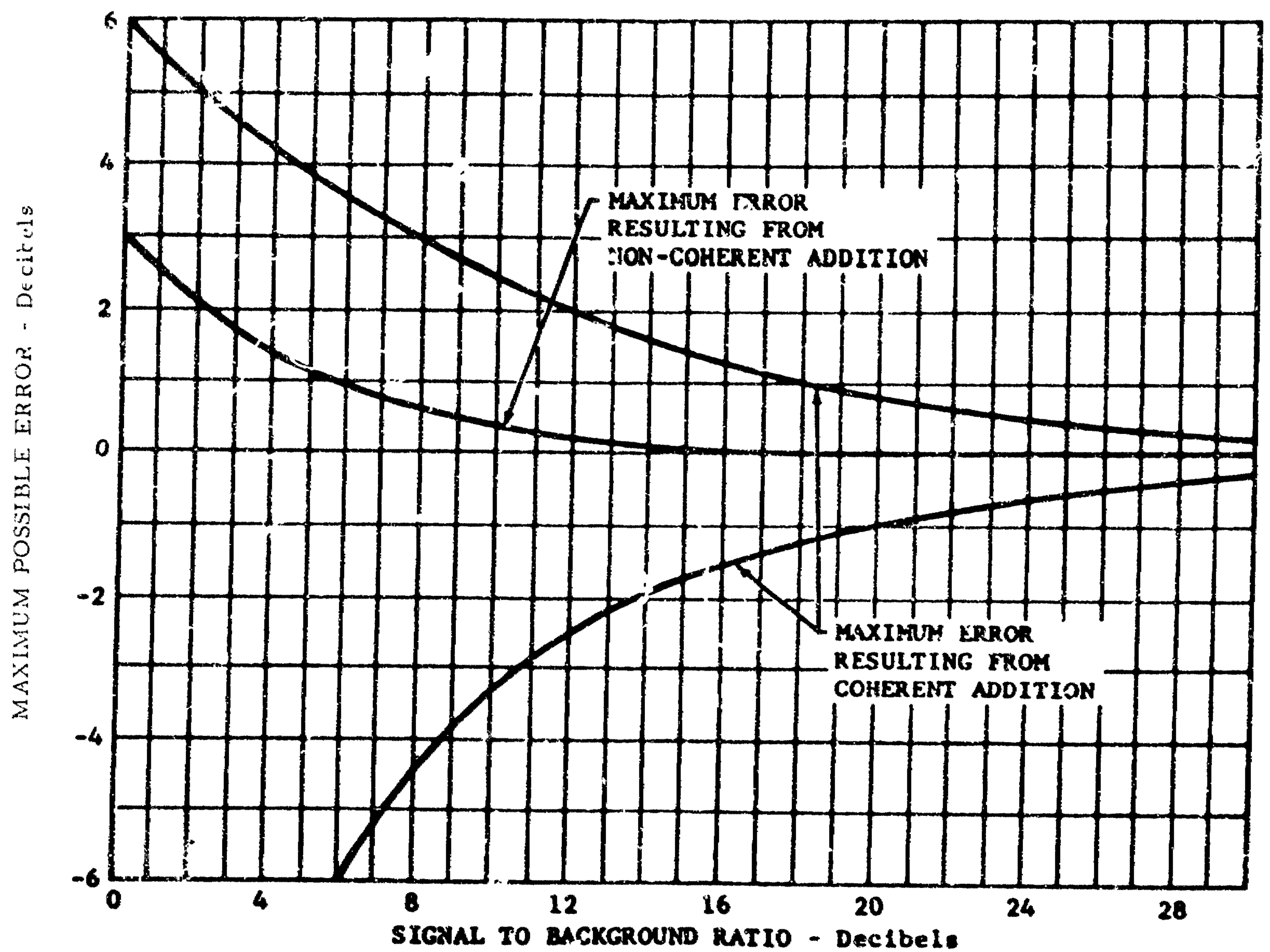


Figure A-2 PLOT OF ERROR INDUCED BY BACKGROUND INTERFERENCE

UNCLASSIFIED

Vertical probes are taken at the target area to determine power variation as a function of target height. If necessary, antenna height is varied to obtain an acceptable vertical probe which then necessitates a new calibration.

3. Background - The background level with the target mount in place is measured in each polarization to be used.

4. Measurement - The measurement is made with the vehicle in the position previously occupied by the primary standard.

5. Calibration - The primary calibration is repeated to verify calibration (post calibration).

APPENDIX B
TARGET ORIENTATION AND DATA FORMAT

1. COORDINATE SYSTEM

The coordinate system described herein has been adopted as a standard for RAT SCAT operations. The system is referenced both to the vehicle being measured and to the measurement site.

a. Vehicle Reference

A three-axis system, referenced to an arbitrary vehicle, is illustrated in Figure B-1. In this system three mutually perpendicular planes (yaw, pitch, and roll) are passed through the vehicle so that the pitch and yaw planes mutually intersect on the longitudinal axis of the vehicle. These planes remain fixed with respect to the vehicle, regardless of vehicle rotation with respect to the radar or ground plane. The yaw plane, which includes the pitch axis and the roll axis, is numbered from 0 degrees to 360 degrees in a clockwise direction when the vehicle is viewed from above. The nose-on aspect corresponds to 0 degrees, the starboard side of the vehicle corresponds to 90 degrees, and the port side to 270 degrees. The pitch plane, which contains the roll axis and the yaw axis is numbered from 0 degrees to ± 180 degrees; the + 90 degree point is below the center line, and the - 90 degree point is above the center line. The roll plane contains the yaw axis and the pitch axis. It is numbered from 0 degrees to 360 degrees, and the numbers increase in a counterclockwise direction when the vehicle is viewed from the rear.

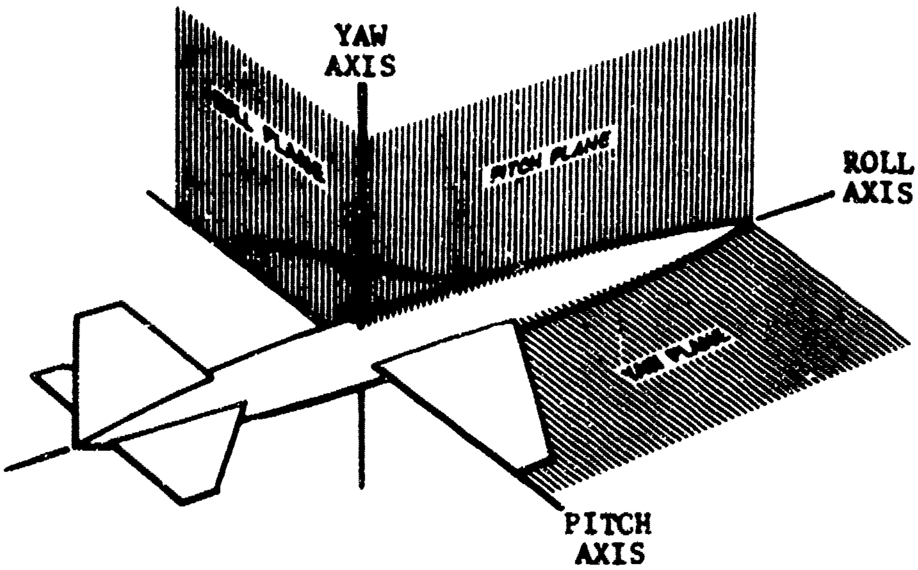
b. Site Reference

As previously stated the coordinate system is fixed with respect to the vehicle. It is referenced to the site by means of three index marks. The exact value of any of the three angles is determined by noting the value of the vehicle coordinate opposite the index marks. Index marks come from such devices as bubble levels, inclinometers and transits.

As illustrated in Figure B-2, the index for roll angles is normal to the axis of rotation. As illustrated in Figure B-3, the index for pitch angles is normal to the axis of rotation and in line with the apparent source of radiation. For measurements at the RAT SCAT Site, targets can be mounted to provide desired pitch and roll angles.

c. Coordinate System Tilt

For small targets another angle, tilt, can be utilized in recording useful data. This angle, equipment-limited to less than 15 degrees, is formed by the axis of rotation and the normal to the line of sight to the



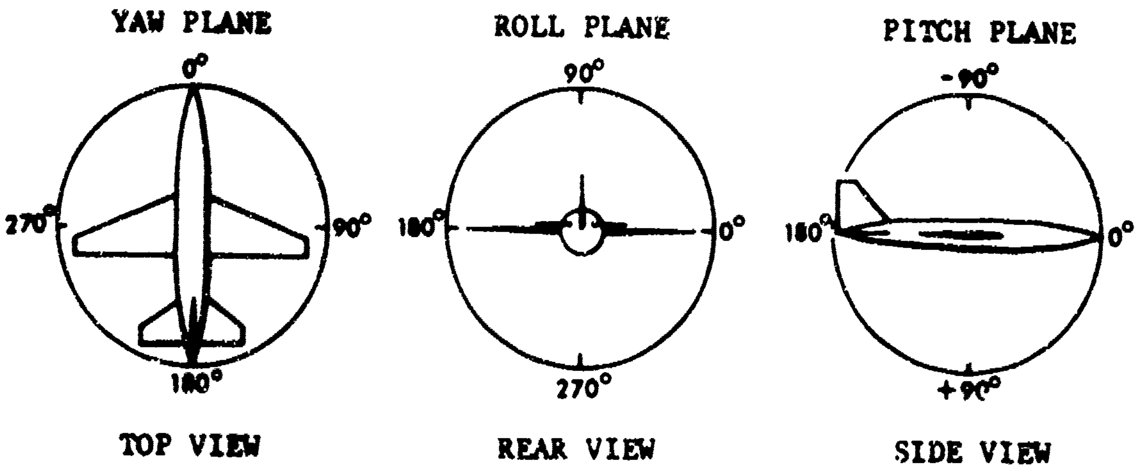
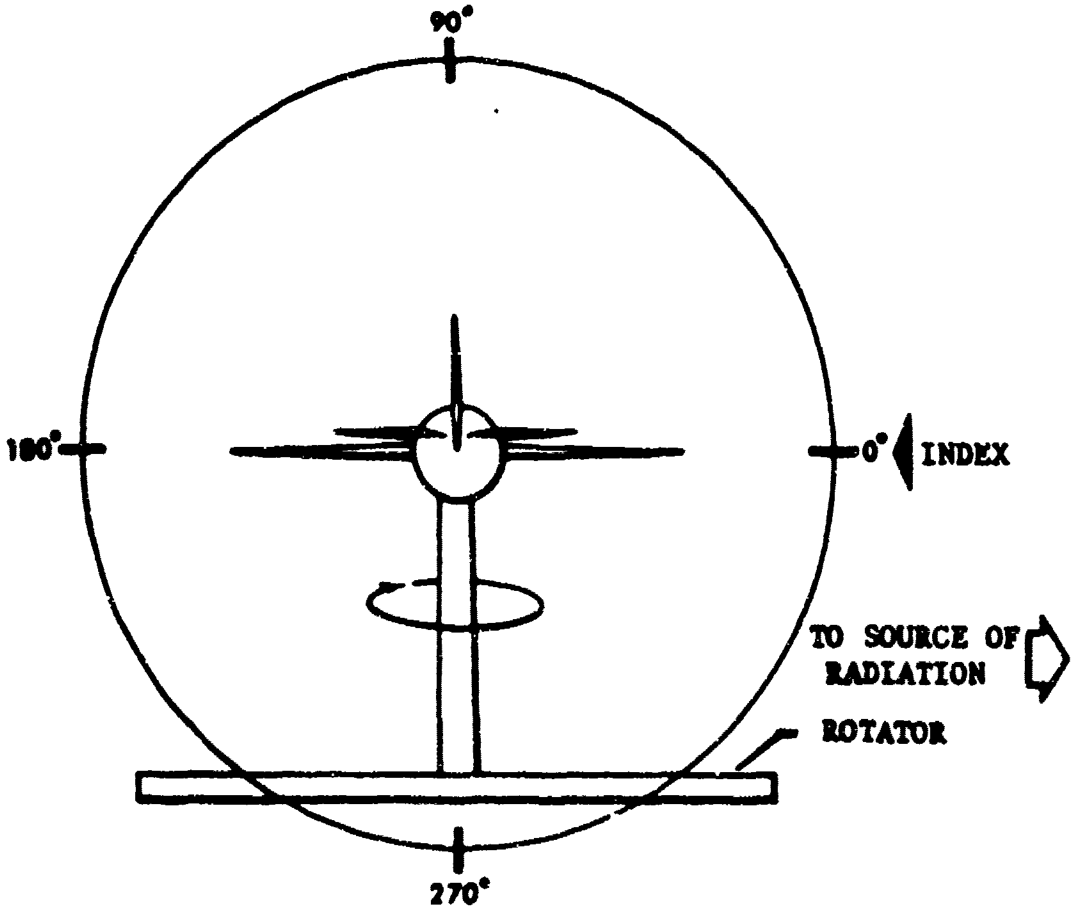
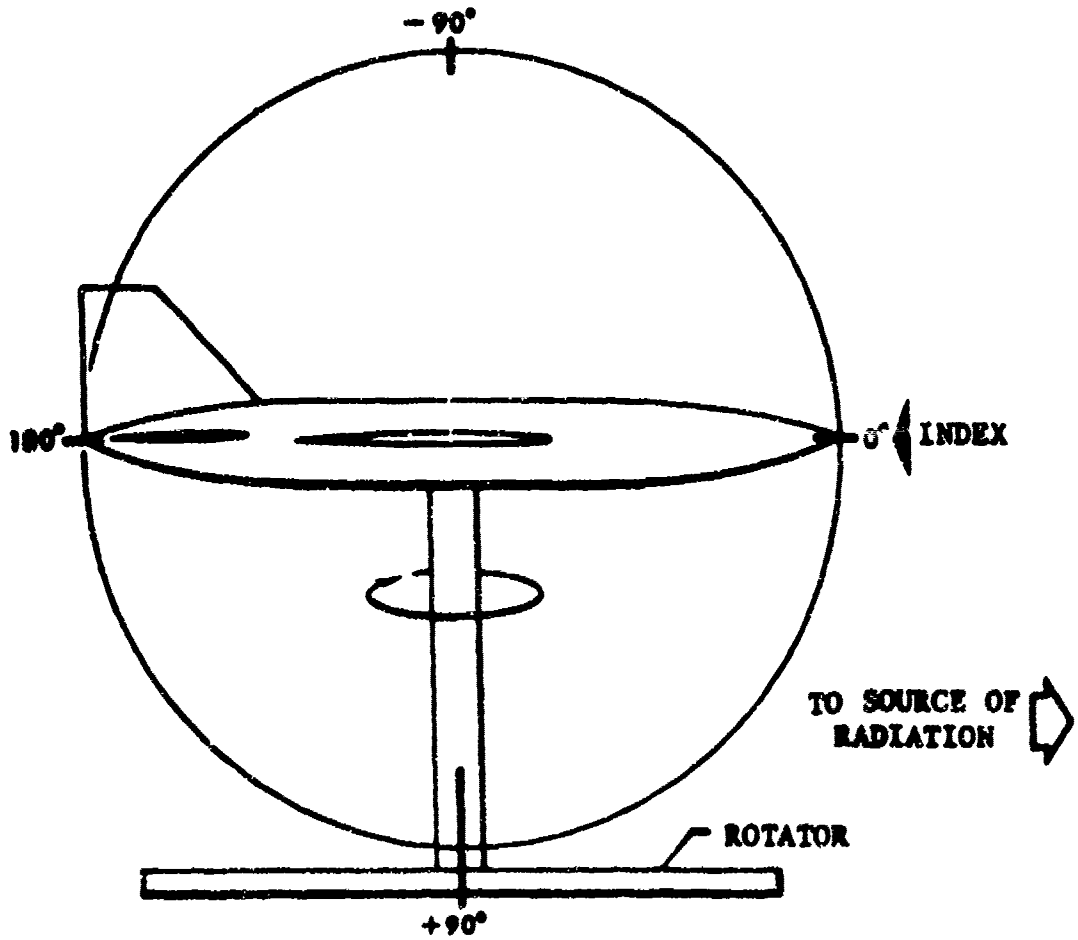


Figure B-1 VEHICLE COORDINATE SYSTEM



NOTE: The roll scale is fixed to the vehicle. The amount of roll is determined by noting the number of degrees opposite the index. Clockwise rotation of the target (when viewed from the rear) increases the roll angle.

Figure B-2 TARGET ORIENTATION - ROLL



NOTE: The pitch scale is fixed to the vehicle. The number of degrees of pitch is determined by noting the scale value opposite the index.

Figure B-3 TARGET ORIENTATION - PITCH

apparent source of radiation. Since, in a ground plane range, radiation can be considered to emanate from a point with zero height directly beneath the antennas, a zero-degree tilted axis of rotation is slightly off the geometrical vertical. This small deviation from the geometrical vertical is neglected in the following discussions.

A target mounted with a pitch angle other than zero displaces the yaw axis from the vertical, but not the axis of rotation. The axis of rotation is displaced from the vertical only when non-zero tilt is employed. Tilting toward the radar is considered positive tilt and away from the radar is negative tilt. For monostatic measurements tilt will be measured in the vertical plane containing the line of sight between the radar and the target. The difference between pitch and tilt is shown in Figure B-4.

2. DATA FORMAT

Data recorders obtain azimuth angle information by means of precision synchro signals from the position of the rotating table. The line of sight from the antennas to the center of the rotator, as illustrated in Figure B-5, indexes azimuth angles. As used here the term azimuth refers to the position of the target rotator table. With zero degrees of pitch and roll, azimuth and yaw are identical. It is standard practice to turn the rotator in a clockwise (cw) direction as viewed from above. Consequently, the azimuth angle varies, for example from 180 degrees (tail-on) to 90 degrees (starboard-side) to 0 degrees (nose-on) to 270 degrees (port-side).

a. Polar and Rectilinear Plots

Essential information pertinent to each plot is contained in the information block located in the upper right hand corner of the rectilinear plots and in the second quadrant of the polar plots. Each rectilinear plot has the recording of the return from the left side of the vehicle on the left side of the plot, 0 degrees at the center, and the recording of the return from the right side of the vehicle on the right side of the plot; 180 degrees (tail-on) appears at the right and left extremeties of the plot, as shown in Figure B-6. Since the paper moves from left to right under the recorder pen, it should be noted that measurements are limited at 180 degrees in order to obtain continuous measurements on the recorder paper. The table on the polar recorder is rotated in the same directions as the target so the 90-degree point appears on the right side of the polar plot, the 270 degree point on the left, and the zero or 360 degree point at the top of the plot.

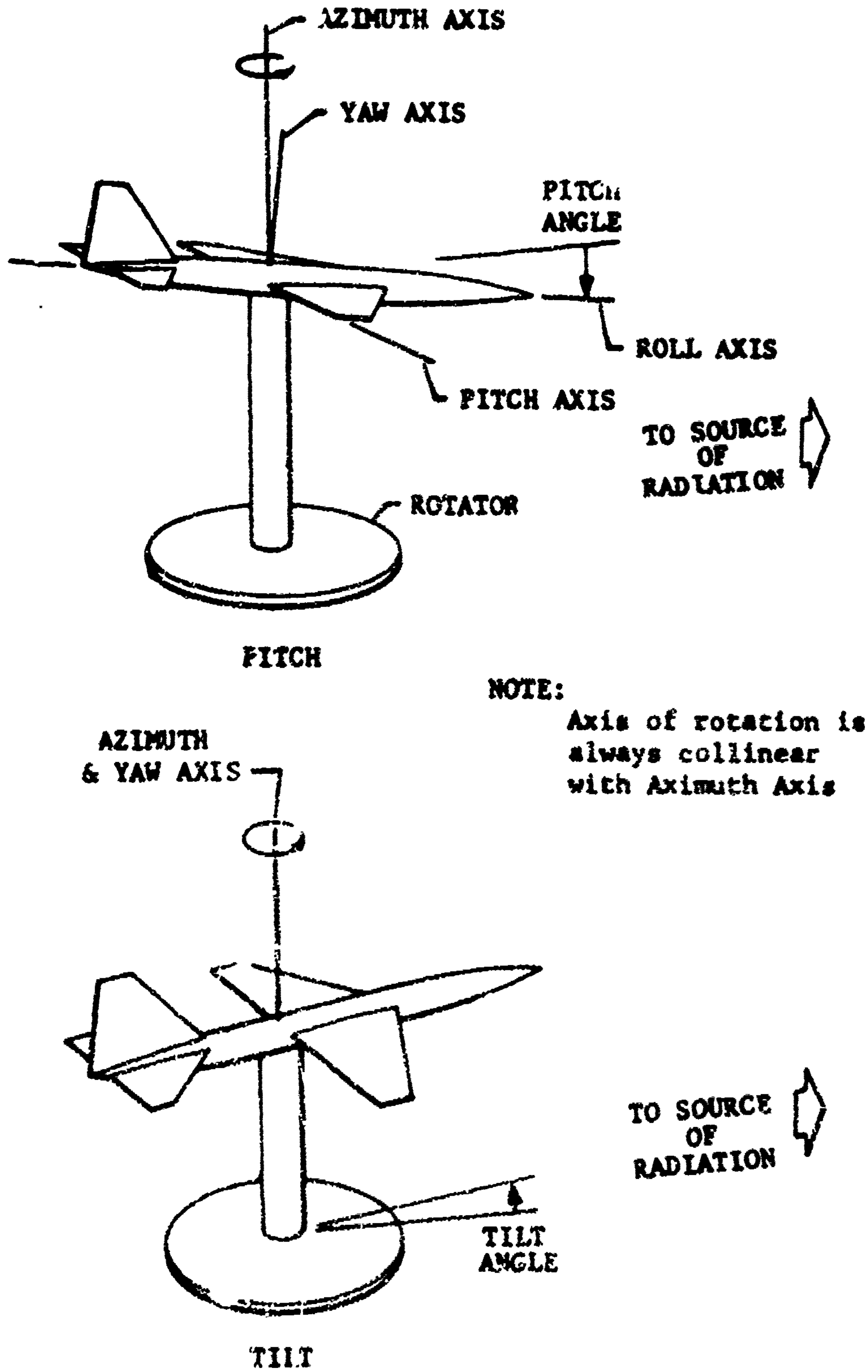
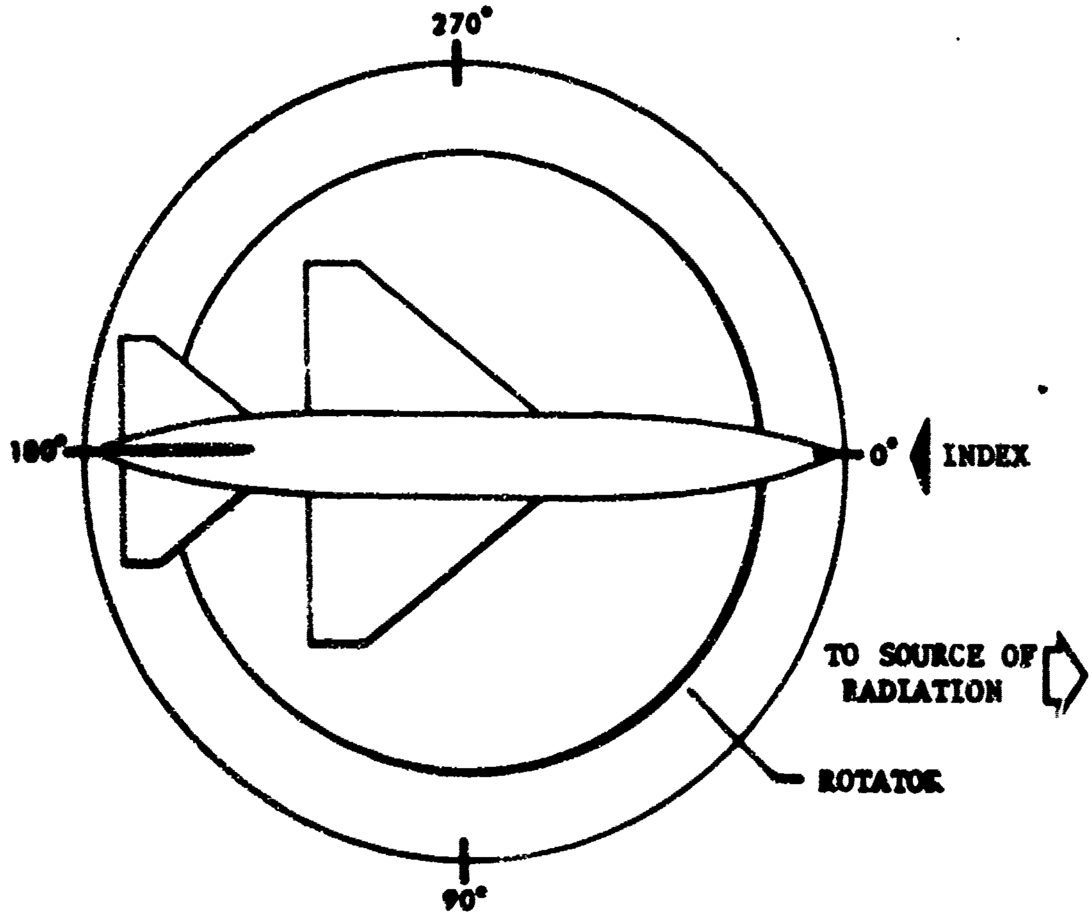


Figure B-4 COMPARISON OF PITCH AND TILT ORIENTATIONS



NOTE: The azimuth scale is fixed to the target rotator. The azimuth value is determined by noting the value of the scale opposite the index mark as the rotator and scale revolve. The index is the line-of-sight from the radar antennas to the center of the rotator. (Azimuth angle data are transmitted to the data recorders by means of synchro signals.) The standard direction of rotation will be clockwise.

Figure B-5 TARGET ORIENTATION - AZIMUTH

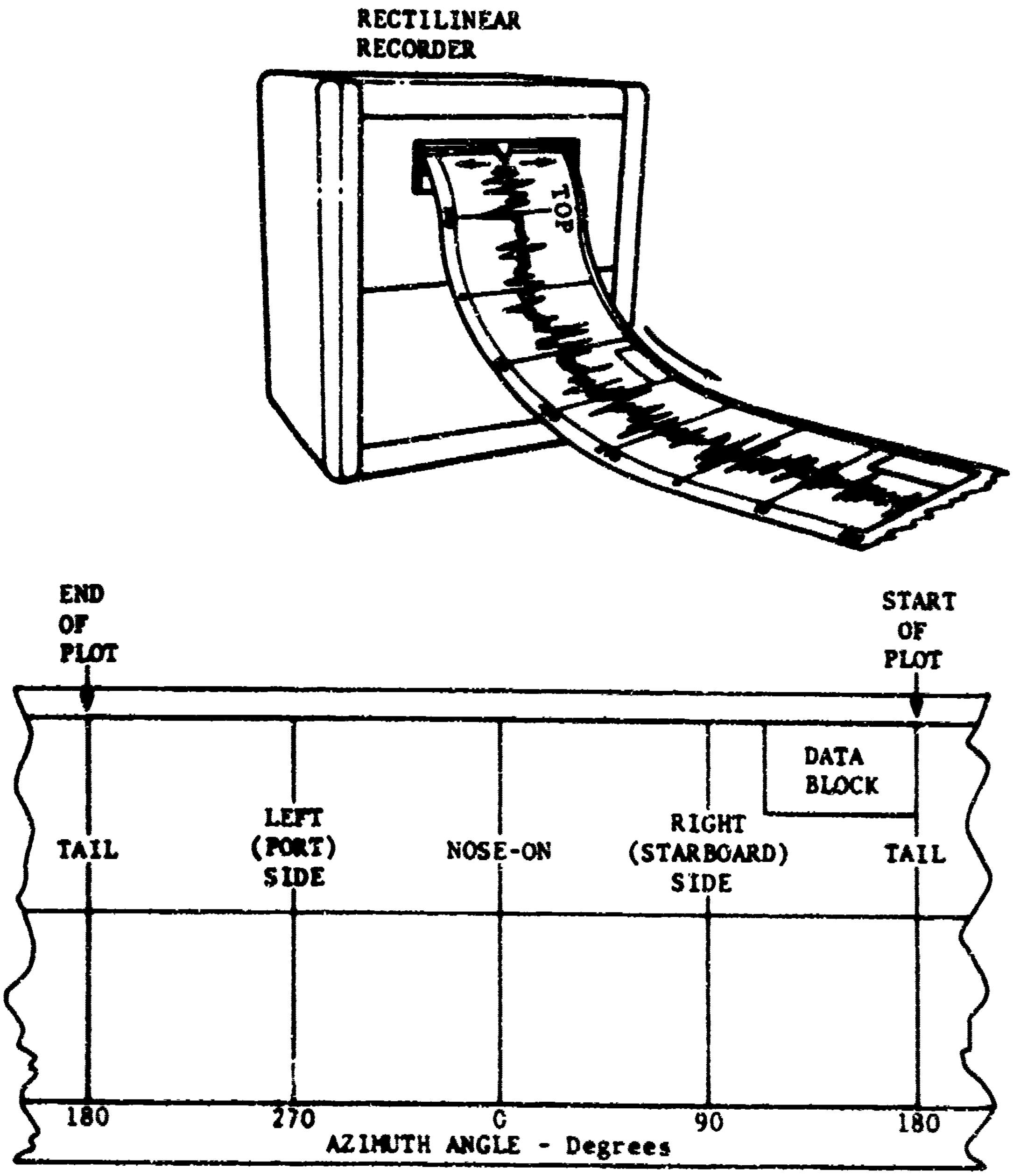


Figure B-6 FORMAT FOR RECTILINEAR PLOTS